Strategiskt rådsmöte 3 2013
2013-05-30 10:00
Freja, Teknikringen 8

KTH Teknikvetenskap

Protokoll

Närvarande: Leif Kari
Jakob Kuttenkeuler
Karin Blom
Henrik Shah Gholian
Oscar Tjernberg
Anna Finne Wistrand
Jens Fransson
Mats Wallin
Anders Forsgren
Anna-Karin Burström
Carolina Eneqvist

1. Mötets öppnande

   Ordförande Leif Kari förklarar mötet öppnat.

2. Anmälda förhinder

   Björn Birgisson har anmält förhinder. Student- och doktorandrepresentant är frånvarande.

3. Närvaro- och yttranderätt

   Anders Forsgren, Anna-Karin Burström och Carolina Eneqvist föreslås få närvaro- och yttranderätt under hela mötet.

   Strategiska rådet beslutar

   att Anders Forsgren, Anna-Karin Burström och Carolina Eneqvist ges närvaro- och yttranderätt under hela mötet.

4. Val av justeringsperson

   Jakob Kuttenkeuler föreslås som justerare för mötet.

   Strategiska rådet beslutar

   att välja Jakob Kuttenkeuler som justerare för strategiskt rådsmöte 3 2013.

5. Fastställande av föredragningslista [bilaga 1]

   Strategiska rådet beslutar

   att fastställa föredragningslista

6. Föregående protokoll (rådsmöte 10 april 2013)

Strategiska rådet beslutar

att lägga protokollet från rådsmötet 10 april 2013 till handlingarna.

7. Anmälningar[bilaga 2]

Anders Forsgren redovisar genomförda disputationer och licentiatseminarier enligt bilaga 2.

8. Rekryteringsärenden, fakultetsförnyelse och jämställdhet

a. Rapport av pågående ärenden[bilaga 3]

Anders Forsgren presenterar pågående rekryteringsprocesser.

b. Biträdande lektor i Teoretisk kärnfysik[bilaga 4]

Anders Forsgren föredrar ärendet. Rådet diskuterar ärendet och efterlyser en omvärldsanalys där ämnets relevans motiveras och kopplas till resursfördelningen inom institutionen.

Strategiska rådet beslutar

att bordlägga ärendet till nästa skolrådsmöte och begära in en motivering kring ämnets relevans och koppling till resursfördelningen inom institutionen.

c. Affilierad fakultet i Numerisk analys[bilaga 5]

Anders Forsgren föredrar ärendet.

Strategiska rådet beslutar

att föreslå skolchefen att tillstyrka ärendet.

d. Affilierad fakultet i Fysik[bilaga 6]

Anders Forsgren föredrar ärendet.

Strategiska rådet beslutar

att tillstyrka ärendet.

e. Affilierad fakultet inom Fordonsdynamik[bilaga 7]

Anders Forsgren föredrar ärendet.

Strategiska rådet beslutar

att tillstyrka ärendet.

Olof Edholm anländer till mötet

9. Presentation av Teoretisk fysik, Olof Edholm[bilaga 8]

   Olof Edholm prefekt för institutionen Teoretisk fysik presenterar sin verksamhet.

10. Övriga frågor

    Inga övriga frågor.

Vid protokollet

_____

Anna-Karin Burström

Justeras

_____ _____

Leif Kari Jakob Kuttenkeuler

Strategiskt rådsmöte 3 2013
20130530 kl:10.00
Freja, Teknikringen 8

bilaga 1

Föredragningslista

*= bilaga finns

1. Mötets öppnande
2. Anmälda förhinder
3. Närvaro- och yttranderätt
4. Val av justeringsperson
5. Fastställande av föredragningslista
6. Föregående protokoll (rådsmöte 10 april 2013)
7. Anmälningar*
8. Rekryteringsärenden, fakultetsförnyelse och jämställdhet
    a. Rapport av pågående ärenden*
    b. Biträdande lektor i Teoretisk kärnfysik*
    c. Affilierad fakultet i Numerisk analys*
    d. Affilierad fakultet i Fysik*
    e. Affilierad fakultet inom Fordonsdynamik*
9. Presentation av Teoretisk fysik, Olof Edholm och Farkost och flyg, Dan Zenkert
10. Övriga frågor
11. Mötets avslutande

KTH, SE-100 44 Stockholm. Tel: 08-790 7603
E-post:akbu@kth.se www.kth.se/sci

Bilaga 2

Disputationer

april - juli

19
april
fredag, 13:00
Fysik
Plats: Sal FD5, AlbaNova Universitetscentrum, Roslagstullsbacken 21, Stockholm
Respondent: Robert Rosén

3
maj
An experimental study on streamwise streaks in transitional boundary layers
Teknisk Mekanik
Plats: Sal F3, Lindstedtsvägen 26, KTH, Stockholm
Respondent: Shahab Shahinfar

17
maj
fredag, 10:00
Disputationer
Some aspects of optimal switching and pricing Bermudan options
Tillämpad Matematik och beräkningsmatematik
Respondent: Ali Hamdi

22
maj
onsdag, 10:00
Mechanics and Growth of Articular Cartilage Around a Localized Metal Implant
Teknisk Mekanik
Plats: sal F3, Lindstedtsvägen 25, KTH, Stockholm
Respondent: Krishnagoud Manda

22
maj
onsdag, 13:15
A Vibro-Acoustic Study of Vehicle Suspension Systems: Experimental and Mathematical Compon
Respondent: Eskil Lindberg

28
maj
tisdag, 13:00
Polyanalytic Bergman Kernels
Matematik
Respondent: Antti Haimi

Bilaga 2

30
maj
torsdag, 10:00
Compact solid-state lasers in the near infrared and visible spectral range
Fysik
Plats: sal FD5, AlbaNova Universitetscenter, Roslagstullsbacken 21, Stockholm
Respondent: Kai Seger

31
maj
fredag, 10:15
Disputationer
Zone plates for hard x-ray free-electron lasers
Fysik
Respondent: Daniel Nilsson

31
maj
fredag, 14:00
Topology of moduli spaces and operads
Matematik
Respondent: Dan Petersen

5
juni
Robust Optimization of radiation therapy accounting for geometric uncertainty
Tillämpad matematik
Respondent: Albin Fredriksson

5
juni
onsdag, 10:00
Effective Spatial Mapping for Coupled Code Analysis of Thermal-Hydraulics/Neutron-Kinectis of E
Fysik
Respondent: Joanna Peltonen

7
juni
fredag, 09:00
Failure of vascular tissue with applications to the aneurysm wall, carotid plaque and myocardial I
Hållfasthetslära
Respondent: Caroline Forsell

10
juni
måndag, 10:00
Multi-Functional Composite Design Concepts for Rail Vehicle Car Bodies
Farkostteknik
Respondent: David Wennberg

bilaga 2

11
juni
tisdag, 10:00
Disputationer
Characterisation and Utilisation of Steering Feel in Heavy Trucks
Fordonsteknik
Respondent: Malte Rothhämel

14
juni
fredag, 10:00
Multicriteria optimization for managing tradeoffs in radiation therapy treatment planning
Tillämpad matematik
Respondent: Rasmus Bokrantz

14
juni
fredag, 14:00
Experimental and theoretical studies of nitride fuels
Fysik
Respondent: Merja Pukari

Licentiatseminarier

april - juli

19
april
fredag, 13:15
Probing the Standard Model Higgs boson in the WW decay mode with the ATLAS detector at the
Fysik
Licentiand: Jelena Jovicevic

23
april
tisdag, 10:15
Numerical study on instability and interaction of wind turbine wakes
Teknisk mekanik
Licentiand: Sasan Sarmast

12
maj
söndag, 10:15
Modeling of Dislocation Bias in FCC Materials
Fysik
Licentiand: Zhongwen Chang

Bilaga 2

24
maj
fredag, 10:15
Deployment Simulations of a Composite Boom for Small Satellites
Teknisk Mekanik
Licentiand: Pau Mallol Parera

24
maj
fredag, 13:00
Modelling of dynamic crack propagation in rubber
Hållfasthetlära
Licentiand: Elsiddig Elmukashfi

29
maj
onsdag, 13:15
Licentiatseminarier
Thermal properties of volume Bragg gratings and its implications on laser
Fysik
Licentiand: Staffan Tjörnhammar

7
juni
fredag, 13:15
Investigations of in-plane properties of paperboard
Hållfasthetslära
Licentiand: Anton Hagman

10
juni
måndag, 10:00
Micromechanical behavior of fiber networks
Hållfasthetslära
Licentiand: Svetlana Borodulina

10
juni
måndag, 15:00
Prediction of forced convection heat transfer to lead-bismuth-eutectic
Fysik
Licentiand: Roman Thiele

13
juni
torsdag, 10:15
Active Controll and Reduced-Order Modeling of Transition in Shear Flows
Teknisk Mekanik
Licentiand: Reza Dadfar

bilaga 2

13
juni
torsdag, 14:15
Stability and Transition of Three-Dimensional Boundary Layers
Teknisk Mekanik
Licentiand: Seyed Mohammad Hosseini

14
juni
fredag, 10:30
Explicit algebraic turbulence modelling in buoyancy-affected shear flows
Teknisk mekanik
Licentiand: Werner Lazeroms

14
juni
fredag, 13:15
Licentiatseminarier
Unsteady simulations of the turbulent flow in the exhaust system of an IC-engine for optimal ene
Teknisk mekanik
Licentiand: Johan Fjällman

Bilaga 3

Michael Fokine	2013-01-28	Bitr. lektor till lektor					(1.) AU-beredning
Jakob Kuttenkeuler	2013-01-14	Lektor till professor					(3.) Efter AU
Gunilla Efraimsson	2013-01-31	Lektor till professor					(3.) Efter AU
Mattias Dahl	2013-01-21	Lektor till professor					(4.) Sakkunninggranskning
Carlota Canalias	2013-01-21	Bitr. lektor till lektor					(4.) Sakkunninggranskning
Katarina Gustavsson	2013-01-31	Bitr. lektor till lektor					(4.) Sakkunninggranskning
Mikael Nygårds	2013-01-08	Bitr. lektor till lektor					(5.) CTFN
Jenny Jerrelind	2013-01-30	Bitr. lektor till lektor					(5.) CTFN
Hans Ringström	2012-10-18	Lektor till professor	CTFN	2013-05-02	15/13	Bifall	(6.) Beslut
Ulrich Vogt	2012-10-30	Lektor till professor	CTFN	2013-04-19	13-dec	Bifall	(6.) Beslut
Jens Fransson	2012-09-19	Lektor till professor	CTFN	2013-04-04	13-okt	Bifall	(6.) Beslut
Jonas Faleskog	2013-01-31	Lektor till professor	AU	2013-03-05	13-apr	Avslag	(6.) Beslut

Sida 3

Utlysta anställningar

Befattning	Ämne	Dnr	Status	Nästa steg
Lektor	Numerisk analys	VL-2011-0123	Richard Tsai och Elias Jarlbring ska anställas	Väntar på beslut om anställn+ besvärshänvisning (skickas till UF registrator och Kia)
Lektor	Matematik	VL-2013-0060	Anställningsprofil AU 7/5, protokoll ej klart.	Översättn instruktioner till sökande (annons o CV mall). CV mall för ärendet skapa. Göra annonsunderlag. Till annonsering senast början av v 25
Biträdande lektor	Numerisk analys	S-2012-0964	Sakkunnigutlåtanden inkomma senast 5/8-13	Utskickat till en sakkunnig. Den andra sakkunnig hämtar handlingarna på KTH slutet av maj
Biträdande lektor	Spårfordonsteknik	S-2012-0903	Annons sista ans dag 13/6.	Efter sista ansökningsdag invänta fullständigt underlag från skolan för utseende av sakkunniga (tidigast i augusti)
Biträdande lektor	Hållfasthetslära	S-2013-0080	Annons sista ans dag 3/5.	Väntar fullständigt underlag från skolan för utseende av sakkunniga (sista chansen före sommaren är att inkomma i god tid före AU beredning 4/6)
Biträdande lektor	Marina system	S-2013-0294	Annons sista ans dag 23/8.	Efter sista ansökningsdag invänta fullständigt underlag från skolan för utseende av sakkunniga (tidigast i september)
Gästprofessor (förlängning), Staffan Toll	Fibermekanik	VL-2009-0032	Mailat beslut om förlängning 6 mån, from 1/6-13, till Anna-Karin B för utskrift och skolchefens underskrift.	Beslut åter från skolan med skolchefens underskrift, därefter attestrunda

Bilaga 3

Docenter

			Anmärkning
Zuheir Barsoum	Lättkonstruktioner/höghållfasta material	V-2012-0312	Docentbeslut expedierat 20121121. Docentbevis färdigt för hämtning. Sökande meddelad- ej hämtat.
Mihai Mihaescu	Mekanik - tillämpad strömningsmekanik	V-2012-0370	Docent 2013-03-12.
Pär Olsson	reaktorfysik	V-2012-0449	Docentbevis klart. Sökande ska hämta.
Geert Brethower	strömningsmekanik	V-2012-0658	Underlag för beslut om antagande till dekanus 28/2-13. Väntar besked om status 16/5-13/ KV
Minh Do-Quang	strömningsmekanik	V-2012-0753	Docent 2013-03-18
Carlota Canalias	Optiska material	V-2012-0895	Till lärarprov 14/5-13
Michael Fokine	Fysik	V-2012-0937	Till lärarprov 2/4-13/KV
Jonas Sjöstrand	matematik	V-2012-0909	Sakk senast inkomma m utlåt 13/5. Sakkunnig mailat 13/5 att hon är försenad. Sökande är informerad.

Strategic Council
School of Engineering Sciences

2013-05-20

Proposal to establish an assistant professor (biträdande lektor) position in theoretical nuclear physics

The Department of Physics proposes to establish an assistant professor position in theoretical nuclear physics. The identity of the Division of nuclear physics is defined by a close collaboration between experimentalists and theoreticians. Experimental and theoretical nuclear physics basic research is conducted, including the development of detector systems and applications to medical imaging. The basic research focuses on studies of very unstable atomic nuclei under extreme conditions in order to study the strong nuclear interaction.

Within the subject area this has given the group a unique, creative and productive profile in the world, thereby raising KTH's research profile. Professor Ramon Wyss has lead the theoretical nuclear physics group for many years. In recent years, however, Professor Wyss' activity has been mainly directed towards duties at KTH in his position as vice-president for international affairs. By recruiting at assistant professor level, the Department wishes to nurture a new leader for this research field during the next few years until Professor Wyss retires.

An assistant professor will be expected to contribute to undergraduate and postgraduate teaching within the Department both through specialised courses, but also generally through a detailed knowledge of quantum physics and applications there-of. Knowledge of nuclear physics is important at KTH as it impacts many branches of society, such as environment issues, nuclear power and healthcare. There are also considerable synergy effects with other strong basic science activities within the Department, such as astrophysics.

The KTH experimental nuclear physics group is strongly involved in several key international accelerator facilities like JYFL (Finland), GSI (Germany), GANIL (France) and RIKEN RIBF (Japan). Significant new investments are currently being made, especially in Europe, within the field of nuclear physics. The Department is therefore keen to position itself competitively in order to fully capitalise on the flood of expected new results, which are likely to impact on many areas of physics. Near-term accelerator-based radioactive beam facilities in preparation in Europe include SPIRAL 2 (France) and the international FAIR facility (Germany). In order to fully exploit the research potential of these facilities, we would like to develop sustainable efforts to develop both detector systems and theoretical models. The particular focus for a new assistant professor will be (1) the development of many-body theories, including the configuration interaction shell model and energy density functionals; (2) establishing a link between nuclear properties and a realistic nucleon-nucleon interaction. An important tool for these studies is petaflop scale supercomputer platforms.

KTH Roslagstullsbacken 21, 106 91 Stockholm. Tel: 08-5537 8183. Fax: 08-5537 8216. E-post: pearce@kth.se
Pg: . Bg: . Momsreg.nr/VAT: SE202100305401. www.physics.kth.se

bilaga 4

The financing plan for the assistant professor position is detailed in the following table:

(kSEK)	Year 1	Year 2	Year 3	Year 4	Year 5
Total	1044	1075	1108	1141	1175
Teaching	250	250	250	250	250
Faculty	794	325	358	391	425
External	0	500	500	500	500

After this five year long period, it is foreseen that financing will follow the usual model applied within the Department of Physics, i.e. ~25% funding from undergraduate teaching activities, ~50% external funding and 25% faculty funding.

A search committee was formed to prepare the proposal for this position. The committee comprises:

- Prof. Mark Pearce, Head of Physics Department
- Prof. Bo Cederwall, Head of nuclear physics Division
- Prof. Ramon Wyss, Head of theoretical nuclear physics group
- Prof. Ayse Atac Nyberg, experimental nuclear physics group
- Prof. Alexander Balatsky, external expert, Department of Theoretical Physics and Nordita

The committee has also prepared a list of possible applicants (* indicates a potential female applicant):

- *Shufang Ban, Indiana University. (Ph.D. obtained at KTH, 2006)
- Gillis Carlsson, Lund University. (Ph.D. obtained at Lund University, 2007)
- *Hui Jiang, KTH. (Ph.D. obtained at Shanghai Jiaotong University, 2011)
- *Jenni Kotila, Yale University. (Ph.D. obtained at Jyväskylä University, 2007)
- Sergey Postnikov, Indiana University. (Ph.D. obtained at Ohio University, 2010)
- Chong Qi, KTH. (Ph.D. obtained at Peking University, 2009)
- *Kamila Sieja, Nuclear Physics Institute, Strasbourg. (Ph.D. obtained at Bordeaux University, 2007)
- Emanuel Arthur Ydrefors, KTH. (Ph.D. obtained at University of Jyväskylä, 2012)

Sincerely,

Mark Pearce, professor
Head of Physics Department

Appendix
- Employment profile

KTH Roslagstullsbacken 21, 106 91 Stockholm. Tel: 08-5537 8183. Fax: 08-5537 8216. E-post: pearce@kth.se
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Bihgn 4

Biträdande lektor i teoretisk kärnfysik

Ämnesområde
Teoretisk kärnfysik

Ämnesbeskrivning
Teoretisk kärnfysik, inriktad mot studier av atomkärnor vid gränserna för stabilitet.

Behörighet
Behörig att anställas som biträdande lektor är den som har avlagt doktorsexamen eller har en utländsk examen som bedöms motsvara doktorsexamen. I första hand bör den komma i fråga som har avlagt examen högst sju år före ansökningstidens utgång. Även den som avlagt examen tidigare bör komma ifråga i första, om det finns särskilt skäl, t.ex. föräldraledighet.

Bedömningsgrunder
Stor vikt kommer att läggas vid den sökandes förmåga att bedriva självständig forskning på hög internationell nivå inom ämnesområdet, samt förmåga att undervisa inom ämnet på grundnivå och avancerad nivå. Vetenskaplig skicklighet skall vara dokumenterad i publikationer i ansedda internationella sakkunnig-bedömda tidskrifter och presentationer på konferenser. Särskilt meriterande är dokumenterad erfarenhet av (a) utveckling av mångkropparsteorier, inklusive vidareutveckling av storskaliga skalmodellsberäkningar; och (b) forskning inriktad mot beskrivningar av struktur och sönderfall (fotoner, partiklar, kluster) för atomkärnor genom användande av moderna teoretiska modeller och genom modellutveckling. Stor vikt läggs även på erfarenhet från samarbete med andra ledande forskargrupper inom kärnfysiksamfundet, särskilt samarbete med experimentella forskningsgrupper anses vara av stor betydelse. Av vikt är sökandes förmåga att erhålla externa medel för forskning inom ämnesområdet. Dokumenterad erfarenhet av undervisning och handledning kommer att betraktas som meriterande. Utmärkta muntliga och skriftliga kommunikationsfärdigheter i engelska krävs.

Arbetsuppgifter
Forskning i teoretisk kärnstrukturfysik och undervisning på avancerad och grundnivå. Den sökande ska också delta i handledning av mastersstudenter och doktorander. Ett nära samarbete med den experimentella kärnfysikgruppen är önskvärd. Den sökande förväntas bistå med administrativa uppgifter vid kärnfysikgruppen, KTH.

Bedömningsgrunder vid ansökan om befordran till lektor
Vid ansökan om befordran till lektor kommer sökandes förmåga att självständigt initiera och driva forskning av hög vetenskaplig kvalitet, publicering i internationella skrifter, och förmåga att erhålla finansiering av forskningsverksamhet att bedömas. Som särskild bedömningsgrund gäller sökandes förmåga att självständigt etablera samarbeten och forskningsinriktningar. Skicklighet i att samverka med personal vid högskola och det omgivande samhället kommer att beaktas. Särskild vikt kommer också att läggas vid visad skicklighet i undervisning på grund- och forskarutbildningsnivå, samt handledning. Förmåga att undervisa grundläggande kurser på svenska är av stor vikt.

bilaga 5

Professor Anders Forsgren
Vice skolchef, SCI, KTH

Dr. Raúl Tempone, affilierad fakultet

Avdelningen för numerisk analys inom institutionen för Matematik, önskar knyta PhD Raúl Tempone till sig som affilierad fakultet. Raúl Tempone är för nuvarande universitetslektor i numerisk analys, men är tjänstledig och arbetar som associate professor vid King Abdullah University of Science and Technology (KAUST), Jeddah, Saudi-Arabien. Rauls tjänstledighet och förordnande vid KTH upphör 2013-06-30.

Bakgrund
Raúl disputerade 2002 i Numerisk Analys med Anders Szepessy som handledare och erhöll tjänst som universitetslektor i numerisk analys på KTH 2007. Han har sedan hösten 2009 varit tjänstledig för att vara med och bygga upp forskningen och utbildningen i beräkningsmatematik vid King Abdullah University of Science and Technology (KAUST). Raul har under sin tid vid Universidiad de la Republica Uruguay, University of Texas at Austin, University of Florida Tallahassee, KTH och KAUST skapat ett omfattande nätverk av aktiva forskare, främst i tillämpad och numerisk stokastisk modellering, och konsoliderat det i tjänsten på KAUST. Både nya doktorer och mer erfarna lärare och forskare i NA-gruppen har deltagit i forskningsprojekt med Raúl. Håkon Hoel, Mohammad Motamed, Jesper Carlsson och Erik v Schwerin har eller har haft post-doc tjänster, och Anders Szepessy, Mattias Sandberg, Ingrid Melinder, Olof Runborg och Jesper Oppelstrup har gjort kortare forskningsbesök och arbetat med Raúl. Raúls KAUST-doktorander Pedro Vilanova och Alvaro Moraes arbetade under 2009 inom NA-gruppen.

Nytta för KTH
Raúls förordnande kommer att avslutas 30/6-2013 och vi vill fortsätta och intensifiera forskningssamarbetet enligt ovan. Raúl kan också bidra till utbildningen (på masters och doktors-nivå) med en intensiv-kurs i numerisk analys av stokastiska dynamiska system, som han har utvecklat och kan hålla som sommarkurs. Bland konkreta idéer finns också att gemensamt slutföra ett pågående doktorandprojekt i finansiell matematik och att knyta det till högst aktuell forskning om "mean field games" vid KAUST.

Vi föreslår därför att KTH utser Raul till Affilierad Fakultet med placering vid NAgruppen, Matematik, med början 1/7-2013.

Ärendet har beretts av en arbetsgrupp (prof. A.Szepessy, prof. O.Runborg, bitr prof. J.Oppelstrup) inom avdelningen för Numerisk Analys, med konsultation av prof. Gustav Amberg (f.d. skolchef SCI), prof. Anders Forsgren, vice skolchef SCI, och dekanus prof. Sophia Hober.

Stockholm, 2013-05-20

Anna-Karin Tornberg
Avdelningsföreståndare, Numerisk Analys

./. CV Raul Tempone

bilaga 5

RAUL TEMPONE - 691218-1010

Associate Professor
Mathematics Computational Science and Engineering,
King Abdullah University of Science and Technology (KAUST),
KAUST SRI Uncertainty Quantification Center Director.
P.O. Box 55455 Jeddah 21534, Saudi Arabia
Email: raul.tempone@kaust.edu.sa

Lektor, Dahlquist Research Fellow
Department of Numerical Analysis
School of Computer Science and Communication
Royal Institute of Technnology
Lindstedtsvägen 3
S-100 44, Stockholm, Sweden
Phone: 08 - 790 7188
Email: rtempone@nada.kth.se

PROFESSIONAL PREPARATION

- ROYAL INSTITUTE OF TECHNOLOGY (KTH) Stockholm, Sweden, 1998-2002.
  - Teknologie Doktor (PhD). Thesis work "Numerical Complexity Analysis of Weak Approximation of Stochastic Differential Equations", supervised by Anders Szepessy at the Department of Numerical Analysis (NADA). Opponent: Jonathan Goodman, Courant Institute of Mathematical Sciences (NYU). Thesis Committee: M. Benedicks, S. Larsson and R. Pettersson.
- ROYAL INSTITUTE OF TECHNOLOGY (KTH) Stockholm, Sweden, 1998 -2000.
  - Licenciate Teknolog. Thesis work "Weak Approximation of Itô Stochastic Differential Equations and Related Adaptive Algorithms", supervised by Anders Szepessy at NADA. Opponent: Roger Pettersson, University of Vaxjö, Sweden.
- FACULTAD DE INGENIERIA, UNIVERSIDAD DE LA REPUBLICA Montevideo, Uruguay, 1998 -1999. - Magister in Mathematical Engineering. Thesis work "On approximation and interpolation of incompressible flows", supervised by Jesper Oppelstrup at NADA, KTH. Thesis Committee: J. Cataldo, R. Durán and O. Gil.
- FACULTAD DE INGENIERIA, UNIVERSIDAD DE LA REPUBLICA Montevideo, Uruguay, 1988–1995. - Industrial Engineer, a 6 years university program.

APPOINTMENTS

- Associate Professor, Applied Mathematics and Computational Science. Founding Faculty. King Abdullah University of Science and Technology, Saudi Arabia. (2009 –)
- Adjunct Associate Professor, Department of Mathematics, UT Austin, USA. (2009-2010).
- Associate Professor (Lektor), Numerical Analysis. School of Computer Science and Communication, Royal Institute of Technology, Sweden. (2007 –)
- Assistant Professor, Tenure Track. School for Computational Sciences and Department of Mathematics, Florida State University, USA. September 2005–2008. At the Department of Scientific Computing after its inception, June 2008 – December 2008. Teaching (including student research supervision) and research duties for both institutions.

- Dahlquist research fellow, Royal Institute of Technology, Sweden. (2007 – 2008).
- Postdoctoral Research Fellow at The University of Texas at Austin, March 2003–September 2005. Worked in Stochastic Differential Equations, Uncertainty Quantification and Verfication and Validation.
- Project Engineer for optimal dispatch of electric power under uncertainty with UITESA-IBERDROLA, SPAIN, Montevideo, Uruguay, September 1998–December 1998.
- Research and Teaching Assistant NADA, KTH, 1998–2002.
- Engineer assistant SACEEM, Engineering Consulting Company, Montevideo, 1993 – 1994.
- Research and Teaching Assistant Math. Dept., UdelaR, Montevideo, 1990-1998.

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DISTINCTIONS AND SCHOLARSHIPS

- Keynote invited speaker for the Foundations of Computational Mathematics conference, Montevideo, Uruguay, December 2014.
- Keynote invited speaker for the International Conference on Spectral and High Order Methods (Icosahom), June 2012 in Gammarth, Tunisia.
- Keynote invited speaker for the 24th Biennial Numerical Analysis conference, held at the University of Strathclyde in Glasgow, Scotland, June 28th- July 1st, 2011.
- The article by I. Babuska, F. Nobile and R. Tempone, "A Stochastic Collocation Method for Elliptic Partial Differential Equations with Random Input Data", SINUM 45(3) (2007) pp. 1005-1034, has been chosen as the "SIGEST" selection from the SIAM Journal on Numerical Analysis (SINUM). My paper appeared in issue 52-2 of SIAM Review, June 2010.
- Received the "Most Cited Author 2005-2008" award for the paper entitled "Solving Elliptic Boundary Value Problems with Uncertain Coefficients by the Finite Element Method: The Stochastic Formulation." This paper was published in the Elsevier Journal, Computer Methods in Applied Mechanics and Engineering, Volume 194, Issue 12-16 (2005), Pages 1251-1294.
- Oden Faculty Research Fellow, ICES, University of Texas at Austin, (July 26 – September 8, 2007)
- First awardee of the "Dahlquist research fellowship" at the Royal Institute of Technology, Sweden. (2007 - 2008).
- Associate Professor, Mathematics, PEDECIBA (Program for the development of basic science), Minister for education and culture, Uruguay (since November 29th, 2006).
- Oden Faculty Research Fellow, ICES, University of Texas at Austin, (July 7 – August 13, 2006)
- Honorary Associate Professor, Instituto de Matemáticas y Estadística, Universidad de la República, Montevideo, Uruguay. (April 2006–)
- ICES Postdoctoral Fellow, University of Texas (March 2003 – August 2005)
- PhD studies at KTH funded by NFR, Sweden (1998 – 2002)
- Visiting Scholar at NADA, KTH. Funded by Swedish Institute, Sweden (Fall 1996 – Fall 1997)
- Scholarship to study at the Institute for Pure and Applied Mathematics (IMPA), Rio de Janeiro. Funded by CNPq, Brazil (Summer 1992)

RESEARCH INTERESTS

Numerical Analysis, Stochastic Differential Equations, Uncertainty Quantification, Verification and Validation, A Posteriori Error Estimation and Adaptive Algorithms, Financial Mathematics.

INVITED TALKS

- Seminar, Dept. of Mathematics, EPFL, February 6, 2013.
- Workshop speaker, Numerical Methods for PDE constrained optimization with uncertain data, January 27 to February 2, 2013. Oberwolfach Mathematical Research Institute, Germany.
- Workshop speaker, Theory and Applications of Stochastic PDEs, Institute for Mathematics and its Applications, Minneapolis, Minnesota, USA. January 14-18, 2013

- Seminar, Dept. of Mathematics, Louisiana State University, Baton Rouge, August 14, 2012.
- ICES seminar, University of Texas at Austin, August 9, 2012.
- INGEMAT seminar, Facultad de Ingenieria, Universidad de la Republica, Montevideo Uruguay, August 3, 2012.
- Workshop on Stochastic Numerics, Montevideo Uruguay, July 31, 2012.
- Minisimposium in the 10^{th} World Congress in Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012
- Keynote speaker, International Conference on Spectral and High Order Methods. Gammarth, Tunisia, June 27, 2012
- Minisimposium speaker, International Conference on Spectral and High Order Methods. Gammarth, Tunisia, June 27, 2012
- Adaptive multilevel Monte Carlo plus wave propagation in random discontinuous media. Workshop on Computational Stochastics March 29, 2012, Annweiler am Trifels, GERMANY.
- Numerical techniques for PDEs with random input data. KAUST-CIMPA School in Applied Mathematics on Uncertainty Quantification. January 5-8, 2012. Thuwal, Kingdom of Saudi Arabia
- KAUST-IAMCS Workshop on Multiscale Modeling, Advanced Discretization Techniques, and Simulation of Wave Propagation hosted at KAUST, May 2011
- Seminar, Dept. of Mathematics, University of Warwick, UK. November 26, 2010.
- Institute for Mathematics and its applications, IMA, University of Minnesota, USA. October 16 & 17, 2010,
- CIMPA School: "Applied Mathematics and Engineering - INGEMAT 2010", Uruguay. March 14–20, 2010, Solis, Uruguay.
- ICES, University of Texas at Austin, August 11, 2009.
- Jornada de Ingeniería matemática, Universidad de la República, Montevideo, Uruguay. December 22, 2008.
- Department of Mathematics, FSU, Advanced Mathematical Finance Seminar, November 6, 2008.
- Scientific Computing, FSU, Graduate Students seminar, October 10, 2008.
- Workshop on SDEs: Models and Numerics. October 2008, NADA, KTH, Stockholm, Sweden.
- ICES, University of Texas at Austin, July 31, 2008.
- Uncertainty Analysis in Complex, Multi-Phisics Applications, Stanford PSAAP Center, July 25-26, 2008, Stanford, California.
- PECOS UQ Summit, ICES, University of Texas at Austin, July 22, 2008.
- The sixth China-Norway-Sweden Conference for Computational Mathematics, June 23-26, 2008, Fudong University, Shanghai, China.
- March 7, 2008, Dept. of Scientific Computing, Uppsala University, Sweden.
- BICS Conference: Numerical Analysis: Multiscale Methods, Adaptivity & Complexity, September 4-7, 2007 University of Bath, UK.
- Numerical Analysis of Stochastic PDEs, September 3-4, 2007, School of Mathematics, University of Manchester, UK.
- "Methods of Verification and Validation", August 14-16 2007, SANDIA National Lab., Albuquerque, NM.

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- "Mathematical and Computational Methods for Accelerated Molecular, Stochastic and Hybrid Simulation", June 25-27, 2007, Foundation for Research and Technology, Heraklion, Crete, Greece,
- April 18, 2007, Dept. of Numerical Analysis, Royal Institute of Technology, Stockholm, Sweden.
- April 10, 2007, Dept. of Mathematics, Chalmers University of Technology, Sweden.
- March 28, 2007, Dept. of Scientific Computing, Uppsala University, Sweden.
- January 16, 2007, Dept. of Numerical Analysis, Royal Institute of Technology, Stockholm, Sweden.
- December 29, 2006, Dept. of Mathematics, Universidad de la República, Montevideo, Uruguay.
- June 20, 2006, Dept. of Mathematics, Politecnico di Milano, Milan, Italy.
- June 9, 2006, Dept. of Numerical Analysis, Royal Institute of Technology, Stockholm, Sweden.
- May 16, 2006, Dept. of Mathematics, Universidad de la República, Montevideo, Uruguay.
- April 18, 2006, Dept. of Mathematics, University of Massachusetts Amherst, MA, USA.
- February 10, 2006, Mini Conference in Numerical Analysis In Honor of Professor Germund Dahlquist, Royal Institute of Technology, Stockholm, Sweden.
- October 30-November 4, 2005, "Transport in Complex Systems" workshop at the Oberwolfach Research Institute, Germany.
- September 19-24 2005, Computational Stochastic Differential Equations workshop at the Banach Center in Bedlewo, Poland.
- April 7, 2005, Stanford University, California, USA.
- March 21, 2005, Florida State University, Tallahassee, Florida, USA.
- March 14, 2005, Dept. of Mathematics, Colorado State University, Denver, Colorado, USA.
- March 10, 2005, Dept. of Mathematics, Purdue University, Lafayette, Indiana, USA.
- February 9, 2005, Dept. of Mathematics, Colorado State University, Fort Collins, Colorado, USA.
- February 7, 2005, Dept. of Mathematics, Texas A&M, College Station, Texas, USA.
- January 26, 2005, Dept. of Numerical Analysis, Royal Institute of Technology, Stockholm, Sweden.
- January 24, 2005, Dept. of Mathematics, Politecnico di Milano, Milan, Italy.
- November 24, 2004, Dept. of Mathematics, Texas A&M, College Station, Texas, USA.
- October 18, 2004, Dept. of Mathematics, University of Texas at Austin, Texas, USA.
- October 11, 2004, Dept. of Mathematics, University of Wisconsin-Madison, Wisconsin, USA.
- September 27, 28 and 30, 2004, Dept. of Mathematics, University of Maryland, Maryland, USA.
- September 22, 2004, Third DOE Workshop on Multiscale Mathematics, Portland, Oregon, USA.
- May 2004, Los Alamos National Laboratory, New Mexico, USA.
- 3 March 2004, Dept. of Mathematics, University of Texas at Austin, Texas, USA.
- November 4, 2003, Dept. of Mathematics, University of Maryland, Maryland, USA.
- October 23, 2003, SANDIA National Laboratory, Albuquerque, New Mexico, USA.
- February 19, 2003, Dept. of Scientific Computing, Uppsala University, Sweden.

- November 28, 2002, Phi Finite Element Center, Chalmers University of Technology, Sweden.
- October 28, 2002, Swedish Institute for Computer Science, Sweden.
- February 20, 2002, United Technologies Research Center, UTRC, Hartford, Connecticut.

PRESENTATIONS IN CONFERENCES

- 4th Annual IAMCS Spring Symposium, May 6 7, 2012.
- 2nd Annual KICP Research Symposium, KAUST. April 22–24, 2012.
- Keynote invited speaker for the 24th Biennial Numerical Analysis conference held at the University of Strathclyde in Glasgow, Scotland from 28th June-1st July 2011.
- Invited speaker, workshop on the Foundations of numerical PDEs. Foundations of Computational Mathematics 2011 conference. Budapest, Hungary. 12th to 14th July 2011.
- Invited speaker, workshop on Coarse-graining of many-body systems: analysis, computations and applications, June 27-July 1, 2011, at the new research center Archimedes Center for Modeling, Analysis and Computation at the University of Crete, Greece.
- Invited Speaker, workshop on Stochastic Partial Differential Equations, June 13–17, 2011, at the new research center Archimedes Center for Modeling, Analysis and Computation at the University of Crete, Greece.
- Invited speaker, minisymposium on numreical methods for Stochastic PDEs, International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources (MAMERN), May 23–26, Saidia, Marocco, 2011.
- Workshop on Stochastic Partial Differential Equations: Modeling, Analysis, and Approximation, TU Darmstadt, Germany, August 24– 28, 2009.
- Mini-symposium "Computational Methods in Stochastic Analysis", 33^{rd} Conference on Stochastic Processes and their Applications, Berlin, Germany, July 27–31, 2009.
- "SIAM Conference on Mathematical Aspects of Materials Science", May 11-14, 2008, Doubletree Hotel, Philadelphia, USA.
- "SIAM conference on Computational Engineering and Science", February 19–23, 2007, Costa Mesa, California, USA.
- "Uruguayan meeting of Mathematics and Statistics", December 18-19, 2006, Montevideo, Uruguay.
- "Numerics for Stochastic Differential Equations with Applications", February 26-March 2 2006. Tallahassee, Florida, USA.
- 8^{th} U.S. Congress for Computational Mechanics, July 25-27, 2005, in Austin, Texas.
- *ASCE Joint Speciality Conference on Probabilistic Mechanics and Structural Reliability*, July 26–28 , 2004, Albuquerque, New Mexico.
- *ICOSAHOM 2004, International Conference On Spectral and High Order Methods* , Brown University, (June 21–25, 2004) Providence, Rhode Island.
- *Recent Advances in Adaptive Computation*, (May 24–28, 2004) Hangzhou, P.R. China.
- *ADAPT '03: Adaptive Methods for Partial Differential Equations and Large-Scale Computation*, (October 11–12, 2003), Troy, New York.
- *CSM Industrial Affiliates Meeting*, (October, 2003), Austin, Texas.
- *7th US National Congress on Computational Mechanics*, (July 28–30, 2003), Albuquerque, New Mexico.

- *The Fifth International Congress on Industrial and Applied Mathematics, ICIAM 2003*,(July 7–11, 2003), Sydney, Australia.
- *The 2nd World Congress of the Bachelier Finance Society*, (June 12–15, 2002), Crete, Greece.
- *First SIAM-EMS Conference: Applied Mathematics in our Changing World*, (September 2–6, 2001), ZIB, Berlin, Germany.
- *The 2001 Nordic Computational Differential Equations*, (March 2001), Tampere University of Technology, Tampere.
- *Stochastic Numerics 2001*, (February 19–21, 2001), ETH, Zurich, Switzerland.
- *The 2000 Nordic Computational Differential Equations Circus* (March 10–11, 2000), University of Bergen, Bergen, Norway.
- *Workshop on Mathematical Finance* (June 22–28, 1998), Sophus Lie Conference Center, Nordfjordeid, Norway.

CONTRIBUTED CONFERENCES

- Conference on the mathematics of Finite Elements and Applications (MAFELAP), (June 8-12, 2009), Brunel University, London, UK.
- WCCM V - *Fifth World Congress on Computational Mechanics*, (7–12 July 2002), Vienna University of Technology.
- *"Workshop on Hamilton-Jacobi Equations*, (24–28, June 2002), Cortona, Italy.
- *"Third International Conference on Applied Mathematics for Industrial Flow Problems"*, (17–20 April 2002), Lisbon, Portugal.
- *Meeting of the TMR-Network: 'Viscosity solutions and applications'*, (3–5 July 2000), Bressanone-Brixen, Italy.
- *TMR-Euroconference in Mathematics: 'Numerical methods for evolution partial differential equations'*, (24–30 June 2000), Academic Village of Anogia, Anogia, Crete, Greece.
- *Foundations of computational mathematics*, (18–28 July 1999), University of Oxford, Oxford, UK.
- WCCM IV -*Fourth World Congress on Computational Mechanics*, (29 June – 2 July 1998) Buenos Aires, Argentina.

EXPERIENCE

- **Short visits,**
  - TICAM, UNIVERSITY OF TEXAS AT AUSTIN, Austin, Texas , (November 2000) and (December 2001–February 2002). Visiting the Texas Institute for Computational and Applied Mathematics (TICAM), invited by Ivo Babuška, to work on Stochastic Partial Differential Equations.
  - ROYAL INSTITUTE OF TECHNOLOGY (KTH), Stockholm, Sweden, (October 1995 – December 1995). Visited the Optimization division to study Non-linear Numerical Programming and related software under the guidance of Anders Forsgren, financed by BITS, Sweden.
- **Teaching Experience,**
  - Associate Professor, King Abdullah University of Science and Technology (2009–) Courses: Numerical Methods for Stochastic Differential Equations (fall 2009, 2010, 2011).- Stochastic Methods (spring 2010, 2011,2012) - Finite Elements (fall 2012) - Unceertainty Quantification (fall 2012)
  - Assistant Professor, Florida State University at Tallahassee (2005–2008) Courses: Introduction to Ordinary Differential Equations (fall 2005).- Calculus (spring 2006).- Numerical Methods for Stochastic Differential Equations (new course developed, graduate level, fall 2006 and fall 2008).
    Helped with the supervision of the graduate student Clayton Webster, October 2005–February 2007.
  - Dalhquist Fellow, Royal Institute of Technology 2008. Participated in the teaching of two courses: PDE (based on Evans book) and Numerical SDE, spring 2008.
  - At UdelaR, Montevideo, Uruguay. Honorary Associate Professor, (May 2006-). Course: Numerics for Stochastic Differential Equations, (graduate level, first time given in April 25 – May 20, 2006 and then in May 20 – July 6, 2008).
  - Teaching assistant, Royal Institute of Technology(1999–2002) Courses: - Mathematical Models, Analysis and Simulation, part I. - Numerical solution of Stochastic Differential Equations. - Numerical Solution of Partial Differential Equations, Stochastic Differential Equations short course 2002-11-8.
  - Teaching Assistant, Universidad de Montevideo 1997-1998. Courses: Calculus.- Numerical Analysis.
  - Teaching assistant, Dept. of Mathematics, Universidad de la República, Montevideo, Uruguay, (1990–1998) Courses: Probability and Statistics, Differential Equations, Complex Analysis, Calculus, part II. - Numerical Analysis. - Nonlinear Numerical Optimization.
  - Lecture notes: *Stochastic and Partial Differential Equations with Adaptive Numerics*, by J. Goodman, K-S. Moon, A. Szepessy, R. Tempone and G. Zouraris (2002).
  - **Postdoctoral advisees**
    - Christian Bayer (2008-2009)
    - Jesper Carlsson (2009 –2012)
    - Erik von Schwerin (2009 –2012)
    - Mohammad Motamed (2010–)

- Quan Long (2011–)
- Matteo Icardi (2013–)
- Hakon Hoel (2012–)
- Bilal Saad (2013–)

– **PhD students**
- Alvaro Moraes (2009 –)
- Pedro Vilanova (2009 –)
- Abdul Lateef Haji Ali (November 2012 –)
- Zaid Sawlan (December 2012 –)
- Juho Häppölä (September 2012 –)

– **MSc Thesis student at KAUST** Abdul Lateef Haji Ali: defended his thesis in October 2012. Thesis title: Pedestrian Flow in the Mean Field Limit. Thesis committee: A. Kasimov, D. Keyes, D. Ketchenson.

– **Masters thesis committee member** 1. Bertrand Rioux (Jan 17, 2012), 2. Mahdi Ben Ghorbel (finished in 2011, EE)

– **PhD thesis proposal committee** 1. Hoby Razafindrakoto, December 2011, 1. 2. Ammar Zafar, April 2012 3. Hina Tabassum, April 2012 4. Mahdi Ben Ghorbel, April 2012

– **Student Mentoring at KAUST** Directing the final undergraduate project for the visiting thesis student Nadhir ben Rashed from Ecole Polytechnique, Tunisia. (Spring 2012) .

– **PhD Qual KAUST Examiner for the following KAUST students:** 1) Yiannis Hadjimichael, December 2011, 2) Anlei Rao, 2011 3) Mahdi BenGhorbel, 2011 4) Mohamad Elgharamti March 2012

– **PhD Thesis Committee Member**
– KAUST PhD thesis defense committee: Hina Tabassum, December 2012. Thesis title: Modeling and Mangement of InterCell Interference via Resource Allocation in Future Generation Wireless Networks
– PhD thesis defense committee: Pablo Romero, November 2012. Thesis title: Mathematical Analysis of Scheduling Policies in Peer-to-Peer Video Streaming Networks
– PhD thesis defense committee: Fabian Crocce, December 2012. Thesis title: Optimal Stopping for Strong Markov Processes: explicit solutions and verification theorems for diffusions, multidimensional diffusions and jump-processes
- Clayton Webster, Florida state University (2005–2007).

– **Master of Science Thesis Advisor at Numerical Analysis, KTH, for the following students:**
"Analysis and Evaluation of Hedging Strategies in the Presence of Transaction Costs", by O. Backman
"Algorithms for computing values of Options of several assets and Malliavin calculus for computing the Delta of a Binary Option", by H. Andersson
"Hedging av Optioner med transaktionskostnader", by C. Magnusson
"Optimal strategies in the Presence of Stochastic Volatility and Transaction Costs", by J. Carlsson
"Pricing convertible bonds with stochastic interest rate", by M. Öhrn and T. Nordquist.
"Sparse Approximation by the Smolyak Method: An Application to Paper Manufac-

turing", by J. Bäck.

- **Master of Science Thesis Advisor, Engineering Mathematics at UdelaR, Montevideo, Uruguay:**
  "Calibración del Modelo HJM (Heath-Jarrow-Morton) para Mercados de Petróleo", ("HJM Calibration for oil markets") by F. de Olivera.

- **Research grants,**
  - PI (Center Director) for Strategic Research Initiative (SRI). Center for Uncertainty Quantification in Science and Engineering. $1,370,000/yr (2012-2014)
  - PI for Uncertainty Quantification for Predictive Modeling of the Dissolution of Porous and Fractured Media; $360,000; 4/1/12-3/31/14; KAUST-AEA with UT Austin;
  - Co-PI for "Tracking Uncertainties in Computational Modeling of Reactive Systems", (number, 63806), funded under the 2010 round of the AEA collaborative research program (KAUST-Stanford).
  - PI for "Predictability and Uncertainty Quantification for Models of Porous Media", funded under the 2010 round of the AEA collaborative research program (KAUST-ICES, UT Austin).
  - Co-PI for "Bayesian Earthquake Source Validation for Ground Motion Simulation", funded under the 2010 round of the AEA collaborative research program (KAUST-ICES, UT Austin).
  - PI for a 3 MUSD KAUST 5 years research project (2009-20013)
  - PI for the project 018315, SANDIA National Labs. Total funds: 100 KUSD, September 2005–September 2007.
  - PI for the subcontract from the following grant: Center for Predictive Engineering and COmputational Sciences (PECOS). Subcontract from ICES, UT Austin, subcontract award: 75 KUSD/yr during 2008.
  - Dahlquist research fellowship at the Royal Institute of Technology, (Sweden), 700 KSEK/yr during 2007 - 2008.
  - PI for the following VR (Sweden) grant, #70636601: "Effective numerical methods for SDEs with applications", 650 KSEK/yr during 2008–2011.
- **Industrial projects,**
  - UITESA-IBERDROLA, SPAIN, Montevideo, Uruguay, September 1998– December 1998. Consultant for a project on optimal dispatch of electric power under uncertainty (Stochastic Programming with an scenario approach) in Montevideo, Uruguay.
  - UNIVERSIDAD DE LA REPÚBLICA, Montevideo, Uruguay, June 1995– June 1996. Technical Staff for a project of short term optimal dispatch of electric power at the Faculty of Engineering.
  - SACEEM, Engineering Service Company, Montevideo, Uruguay, 1993 – 1994 Design Engineer's assistant. Upgrading of a pumping system for large quantities of drinkable water.
- **Longer visits**, ROYAL INSTITUTE OF TECHNOLOGY (KTH), Stockholm, Sweden, (September 1996 – August 1997). Visiting the Dept. of Numerical Analysis and Computer Science (NADA), under the supervision of Jesper Oppelstrup, to work on an inverse problem for incompressible fields. Financed by the Swedish Institute.
- **Administration of Science**
  - **Organization of Scientific Events.** Co-organizer of the following:

- "Workshop on Stochastic Numerical Methods", July 30-31, 2012, at the at School of Engineering, Universidad de la Repblica, Montevideo, Uruguay.
-"Non-Intrusive Methods for Uncertainty Quantification: Analysis and Implementation", Minisymposium at WCCM 2012, July, 2012, Sao Paulo, Brazil.
- CIMPA School: "Applied Mathematics, Computational Science and Engineering", January, 2012, KAUST, Saudi Arabia. Scientific Director.
- Multiscale Approximations of Kinetic Monte Carlo Simulations, Minisymposium at ICIAM 2011, July 18-22, 2011, Vancouver, Canada.
- Workshop: "Computing with Uncertainty: Mathematical Modeling, Numerical Approximation and Large Scale Optimization of Complex Systems", part of the IMA Thematic Year on Simulating Our Complex World: Modeling, Computation and Analysis, October 18–22, 2010, IMA, USA.
- CIMPA School: "Applied Mathematics and Engineering - INGEMAT 2010", March 14–20, 2010, Solis, Uruguay. Scientific Director.
- "Minisymposium on Numerical methods for Stochastic Partial Differential Equations", part of the eighth European Conference on Numerical Mathematics and Advanced Applications, (ENUMATH), June 29-July 3, 2009, Uppsala, Sweden.
- "Minisymposium on Validation and Robust Prediction in Computational Science", part of the conference on the mathematics of Finite Elements and Applications (MAFELAP), June 8-12, 2009, Brunel University, London, UK.
-Jornada de Ingeniería matemática, Universidad de la República, Montevideo, Uruguay. December 22, 2008.
-First DqF Workshop on "Stochastic Differential Equations: Models and Numerics", October 20-22, 2008, Stockholm, Sweden.
- "Minisymposium on Uncertainty Quantification in Materials Science", a part of the SIAM Conference on Mathematical Aspects of Materials Science (MS08) May 11-14, 2008, Doubletree Hotel, Philadelphia, USA.
- "Workshop on Validation and Verification". April 28-May 1, 2008, Banff, Canada.
-"Uncertainty Quantification in Computational Science and Engineering", part of the ICIAM conference, July 16-20, 2007, Zurich, Switzerland.
-"Stochastic Galerkin and Stochastic Collocation for SPDEs", part of the SIAM conference on Computational Engineering and Science, February 19–23, 2007, Costa Mesa, California.
- "Validation Challenge Workshop", May 22-26 2006, SANDIA National Lab., Albuquerque, New Mexico, USA.
-"Numerics for Stochastic Differential Equations with Applications", Feb 26-March 2 2006. Tallahassee, Florida, USA.
-"Uncertainties, Verification and Validation", part of the eigth U.S. Congress for Computational Mechanics, July 25-27, 2005, in Austin, Texas.
-"Analysis of numerical approximations to stochastic PDEs", part of the SIAM conference on Computational Engineering and Science, February 12-15, 2005, Orlando, Florida.

– **Editorial Activities**

1. Associate Editor of SIAM SISC

2. Associate Editor of Computers & Mathematics with Applications. (Elsevier)

– **Refereeing activities**. Peer Review for Computational and Applied Mathematics, Computers & Mathematics with Applications, SIAM Journal on Control and Optimization, Springer Books, Communications in Computational Physics, Numerische Matematik, SIAM Journal for Scientific Computing , the ANZIAM journal, Applied Numerical Mathematics, Computer Methods in Applied Mechanics and Engineering (CMAME), BIT, Chemical Engineering Science, the International Centre for Mathematical Sciences in Edinburgh, the Natural Sciences and Engineering Research Council of Canada (NSERC), the Office of Advanced Scientific Computing Research, Office of Science, U.S. Department of Energy and the Israel Science Foundation.

- **Other events organized** Hosted seminar at SCS, FSU: COMSOL Inc., February 16, 2007 (a one day activity to present COMSOL's software capabilities).

COLLABORATORS & OTHER AFFILIATIONS

(a) **Collaborators**

I. Babuška	Prof., The University of Texas at Austin	2000-
C. Bayer	Reseacher, TU Berlin	2005-
E. Canale	Assistant Prof., Universidad de la Republica, Uruguay	2011 –
M. Katsoulakis	Prof. University of Massachusetts at Amherst	2009–
K-S. Moon	Assistant Prof., Kyungwon University, Korea	1999-
E. Mordecki	Prof., Universidad de la República, Montevideo	2002-
F. Nobile	Assistant Prof., Politecnico di Milano	2003-
J-T. Oden	Prof., The University of Texas at Austin	2003-
J. Oppelstrup	Prof., Royal Institute of Technology	1997-
P. Plechac	Prof. University of Delaware	2009 –
E. Prudencio	Research Scientist, The University of Texas at Austin	2008-
S. Prudhomme	Research Scientist, The University of Texas at Austin	2004-
M. Sandberg	Associate Professor, Royal Institute of Technology	2009-
A. Szepessy	Prof., Royal Institute of Technology	1998-
E. von Schwerin	Postdoc, AMCSE, KAUST	2002-
H. Tembine	Département de Télécommunications at Supelec, Paris, France	2011–
G. Zouraris	Associate Prof., University of Crete	1999-

(b) **Graduate and Postdoctoral Advisors**

Ivo Babuška, ICES, University of Texas at Austin, USA (Postdoc)
Anders, Szepessy, Royal Institute of Technology, Stockholm, Sweden (PhD)
Jesper Oppelstrup, Royal Institute of Technology, Stockholm, Sweden (MSc)

PROFESSIONAL SOCIETIES MEMBERSHIP

Society for Industrial and Applied Mathematics (SIAM), American Mathematical Society (AMS).

LANGUAGES

Spanish, English, Swedish and Portuguese.

COMPLETE LIST OF PUBLICATIONS

- **Peer-reviewed articles**

1. "Monte Carlo Euler approximations of HJM term structure financial models", by T. Björk A. Szepessy R. Tempone G.E. Zouraris. In BIT Numer Math DOI 10.1007/s10543-012-0410-4, 2012.
2. "A stochastic collocation method for the second order wave equation with a discontinuous random speed", by M. Motamed, F. Nobile and R. Tempone. In Numerische Mathematik, vol. 123, Issue 3 (2013), pp. 493–536.
3. "On the optimal polynomial approximation of stochastic PDEs by Galerkin and Collocation methods", by J. Beck, F. Nobile, L. Tamellini and R. Tempone. In Mathematical Models and Methods in Applied Sciences (M3AS), vol. 22, num. 9, p. 1250023.1-1250023.33, 2012.
4. "Adaptive Multi Level Monte Carlo Simulation, Lecture Notes in Computational Science and Engineering", by H. Hoel, E. Von Schwerin, A. Szepessy and R. Tempone, Vol. 82, pp. 217-234, Springer, 2012
5. "Stochastic spectral Galerkin and collocation methods for PDEs with random coefficients: a numerical comparison", by J. Bäck, F. Nobile, L. Tamellini, R. Tempone. in Spectral and High Order Methods for Partial Differential Equations, Lecture Notes in Computational Science and Engineering, Volume 76, pp. 43-62, 2011.
6. " Implementation of optimal Galerkin and Collocation approximations of PDEs with Random Coefficients", by J. Bäck, F. Nobile, L. Tamellini, R. Tempone, CANUM 2010, 40e Congrs National d'Analyse Numrique. ESAIM Proc., Volume 33, pp 10-21, October 2011.
7. "Towards Automatic Global Error Control: Computable Weak Error Expansion for the Tau-Leap Method", by J. Karlsson and R. Tempone. Monte Carlo Methods and Applications, Volume 17, Issue 3. 233–278. 2011
8. "Implementation of optimal Galerkin and collocation approximations of PDEs with random coefficients", by J. Back, F. Nobile, L. Tamellini, R. Tempone. ESAIM Proceedings - Proceedings of CANUM 2010 Conference.
9. "Diffusion approximation of Lévy processes with a view towards finance", by J. Kiessling and R. Tempone, Monte Carlo Methods and Applications, Vol. 17, No. 1, pp. 1145: March, 2011.
10. "Stochastic Spectral Galerkin and collocation methods for PDEs with random coefficients: a numerical comparison", by J. Bäck, F. Nobile, L. Tamellini and R. Tempone. Spectral and High Order Methods for Partial Differential Equations. Lecture Notes in Computational Science and Engineering, Volume 76, pp. 43-62, 2011.
11. "A Stochastic Collocation method for elliptic Partial Differential Equations with Random Input Data", I. Babuska, F. Nobile and R. Tempone, SIAM Review, Volume 52, Issue 2, pp. 317-355, 2010.
12. "Adaptive weak approximation of reflected and stopped diffusions ", by C. Bayer, A. Szepessy and R. Tempone. Monte Carlo Methods and Applications, Volume 16, Issue 1, pp. 1–67, 2010.
13. "Analysis and implementation issues for the numerical approximation of parabolic

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2. "Worst-case scenario analysis for elliptic PDE's with uncertainty", I. Babuška, F. Nobile and R. Tempone, Proceedings of the EURODYN conference, Paris, September 4-7, 2005.
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"Hyperbolic differential equations and adaptive numerics", K-S. Moon, A. Szepessy, R. Tempone and G. Zouraris, in the book *Theory and Numerics of Differential Equations, Durham 2000.* Editors: J. F. Blowey, J.P. Coleman and A.W. Craig, pp. 231–280, Springer Verlag, 2001.

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2. Approximation of quantities of interest in stochastic PDES by the random discrete L^2 projection on polynomial spaces, by G. Migliorati, F. Nobile, E. von Schwerin, R. Tempone, 2012.
3. A quasi-optimal sparse grids procedure for groundwater flows, by J. Beck, F. Nobile, L. Tamellini, R. Tempone, 2012.
4. Analysis and computation of the elastic wave equation with random coefficients, by M. Motamed, F. Nobile, R. Tempone, 2012.
5. Convergence of quasi-optimal stochastic Galerkin methods for a class of PDEs with random coefficients, by J. Beck, F. Nobile, L. Tamellini, R. Tempone, 2012.
6. Fast Estimation of Expected Information Gains for Bayesian Experimental Designs Based on Laplace Approximations, by Q. Long, M. Scavino, R. Tempone and S. Wang, 2012.
7. "Analysis of the discrete L2 projection on polynomial spaces with random evaluations" by G. Migliorati, F. Nobile, E. von Schwerin, and R. Tempone. 2012.
8. On the optimal polynomial approximation of stochastic PDEs by Galerkin and Collocation methods, by J. Back, F. Nobile, L. Tamellini, R. Tempone. June 2011.
9. "Implementation and Analysis of an Adaptive Multi Level Monte Carlo Algorithm", by H. Hoel, E. von Schwerin, A. Szepessy, and R. Tempone. Submitted in October 2010, revised in 2012.
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13. "Reliability, Uncertainty Estimates, Validation and Verification", I. Babuska, F. Nobile, J.T. Oden, R. Tempone. ICES Report 04-05.
14. "A Computational Infrastructure for Reliable Computer Simulations.", J.T. Oden, J.C. Browne, I. Babuska, K.M. Liechti, Y. Feng, J. Bass, P. Hosatte, N. Mahmood, L.F. Demkowicz, S. Produhomme, F. Nobile, and R. Tempone. ICES Report 04-06

Bilaga 5

Anna-Karin Burström

Från: Anders Forsgren <andersf@kth.se>
Skickat: den 23 maj 2013 19:19
Till: Anna-Karin Burström
Ämne: Prefektens tillstyrkan

Sandra Di Rocco skrev 2013-05-23 17:50:
> Ok,
>
> Jag ser att det är att stort nytta för institutionen att affiliera Raul.
> Ta det gärna upp på SR.
>
> Tack och hälsningar
> Sandra
>
> Sent from my iPad
>

Bilaga 6

Strategic Council
School of Engineering Sciences

2013-05-16

Proposal to appoint Pia Thörngren Engblom as 'affiliated faculty' at the Department of Physics

Pia Thörngren Engblom received a Ph.D. in nuclear physics from Stockholm University in 1997 and was appointed as Docent in nuclear physics by Uppsala University in 2003. After completing several postdoctoral and researcher positions in USA and Sweden, she is now employed at the University of Ferrara, Italy, as a researcher since 2011. Thörngren Engblom is an expert in nuclear spin physics and has research interests which focus on fundamental symmetries, nucleon structure and hadron physics.

The Department of Physics wishes to formalise contacts with Thörngren Engblom through the 'affiliated faculty' programme. Her current employer is very positive to this, as shown in the supporting documentation. The aim of the affiliation is to initiate a long-term research exchange between the KTH Division of nuclear physics and the PAX/EDM-JEDI Collaborations where Thörngren Engblom and the University of Ferrara have key leadership responsibilities. These projects form part of the "Hadron Physics 3" EU-financed project.

Thörngren Engblom's work at KTH will initially concern the introduction of nuclear spin physics into the research programme of the nuclear physics Division, e.g. through the organisation of topical seminars and visits from guest researchers. She will also assist in the supervision of Masters' and Ph.D. students and supervise a Ph.D. student who is currently registered at Stockholm University.

The Department of Physics will provide Thörngren Engblom with office space, required computing facilities and other infrastructural needs for her research. Thörngren Engblom remains employed 100% at The University of Ferrara, Italy, but will work 50% at KTH. The Department proposes a 2 year long affiliation in line with Thörngren Engblom's current EU-financed contract in Ferrara. It is likely that the affiliation will be extended, as future European funding is foreseen.

Sincerely,

Mark Pearce, professor
Head of Physics Department

KTH Roslagstullsbacken 21, 106 91 Stockholm. Tel: 08-5537 8183. Fax: 08-5537 8216. E-post: pearce@kth.se
Pg: . Bg: . Momsreg.nr/VAT: SE202100305401. www.physics.kth.se

Bilaga 6

Università degli Studi di Ferrara

DIPARTIMENTO DI FISICA

Via Saragat, 1
I-44100-Ferrara (Italy)

Prof. Paolo Lenisa
Università degli Studi di Ferrara - Dipartimento di Fisica
Via Saragat, 1
44100 – Ferrara, Italy
tel.: +39-0532-974309
e-mail: lenisa@fe.infn.it

Dear Prof. Mark Pearce,
as Spokesperson of the PAX Collaboration, I address you to express my appreciation of the contributions of Dr. Pia Thörngren.

The PAX Collaboration is pursuing projects both in hadron and fundamental physics involving polarized beams and targets.

Dr. Thörngren is collaborating with us since 2003. In this period she has been covering strategic positions related to data analysis and simulations.

In particular, she is the Coordinator of the analysis group of a series of spin-filtering experiments performed at the COSY ring. One test with transverse polarization has been already successfully performed and represents a milestone for the field, in view of its application to produce the first ever beam of polarized antiprotons.

Dr. Thörngren is also the Spokesperson of a proposal devoted to the study of double polarized proton deuteron breakup. The experiment is of outmost importance to provide an experimental basis for chiral perturbation theory and aims at a conclusive investigation of potential three body forces.

Her competence and experience in spin physics will be fundamental for the Collaboration in the data analysis of a test of time reversal invariance. The measurement is planned at the COSY ring in the coming future and will employ a polarized proton beam and deuteron target.

To provide continuation to her contribution, the PAX collaboration is offering Thörngren a contract by the University of Ferrara in the framework of Advanced Research Grant POLPBAR awarded by the ERC. The contract will start in November 2013 and cover a period of 18 months (i.e. till the end of the grant period). The affiliation of Dr. Thörngren to KTH would be of strategic importance for our Collaboration as a Swedish connection, with the exchange of ideas and knowledge at the forefront of nuclear physics research in the work environment of the KTH Nuclear Physics Group.

Kind regards.

Paolo Lenisa

Paolo Lenisa

Bilaga 6

KTH Education and Communication
in Engineering Science

Stockholm den 27 mars 2013

Professor Mark Pearce
Prefekt
Fysik, KTH
106 91 Stockholm

Ansökan om affiliering

Härmed ansöker undertecknad om affiliering vid KTH, fysik, vid avdelningen för kärnfysik under ledning av Professor Bo Cederwall. Affilieringen skulle följa på en anställning finansierad av EU-projektet med akronym Hadronphysics3, "Studies of Strongly Interacting Matter" (http://www.hadronphysics3.eu/) och möjliggöra ett mer långsiktigt utbyte och forskningssamarbete mellan KTHs kärnfysikgrupp och mig och de kollaborationer PAX och EDM-JEDI som jag är aktiv i.

Min forskning fokuseras i nuläget på den fysik som rör partiklars spinn, med tonvikt på fundamentala frågor inom modern fysik som till exempel symmetrier. En av forskningsfronterna idag karakteriseras av precisionsmätningar, man strävar efter exakta mätresultat som kan skilja på och/eller bekräfta teorier, eller visa på existensen av fysik bortom den så kallade standardmodellen, den väl etablerade och beprövade teoribildningen inom modern fysik.

Speciellt kärnfysikgruppen under ledning av Bo Cederwall besitter en expertis som skulle komma till god användning inom det forskningsområde som är under utveckling i ett samarbete mellan den avancerade forskningsanläggningen Forschungszentrum i Jülich och universiteten i Aachen, Tyskland, och INFN, Ferrara, Italien. Min bakgrund inom spinn-fysik vid acceleratoranläggningar i USA och i Tyskland, och med specialistkunskap om analys av spinnobservabler och fåkropparsproblem, kan tas i anspråk av gruppen och möjliggöra utbytet med mina internationella samarbetspartners. Formerna för samarbetet kan vara seminarier, forskarbesök, handledning av studenter och medverkan vid experiment och analys.

Ett första seminarium gavs av mig i november 2012; det berörde ett experiment som jag är spokesperson för och som är planerat att göras vid acceleratorn COSY i Jülich. I februari i år bjöd Bo Cederwall och jag in Dr. Frank Rathmann dels för att träffa kärnfysikgruppen och dels hålla ett AlbaNova-kollokvium om sökandet efter en permanent elektrisk dipol, ett experiment som om det lyckas kan ge vägvisningar till svar angående obalansen materia-antimateria i universum.

Docent Pia Thörngren Engblom
Tel: +46(0)8 5537 8118 Mobil: +46(0) 762 00 9153
Email: piate@kth.se

Sedan januari 2012 är jag handledare för en doktorand vid SU, vars halva doktorsabete grundar sig på analys av data tagna vid COSY avseende analyzing power i tre-kroppars sluttillstånd och relaterade simuleringar. Den analysmetod jag utvecklat för tre-kroppars kinematik kommer till användning för jämförelse med teoretiska beräkningar av de ledande inom området, Prof. Evgeny Epelbaum (universitetet i Bochum) och Dr. Andreas Nogga (Forschungszentrum Jülich). Möjligheter för avtal mellan KTH och SU avseende gemensamma doktorander har undersökts. Det vore önskvärt att ett sådant samarbete kunde utvecklas.

Här följer några ytterligare förslag på aktiviteter inför nästkommande läsår:

- Seminarieserie om härledning av spinnobservabler och analys av dessa
- Inbjudan av min samarbetspartner Dr. Ed Stephenson från IUCF, Indiana, USA, att besöka gruppen angående sökandet av elektriskt dipolmoment och acceleratorrelaterade frågeställningar
- Handledning av programmeringsuppgift i C++ för masteruppsats: multidimensionell linjär interpolation av teoretiska värden för sluttillstånd med tre nukleoner
- Handledning av programmeringsuppgift i C++ för masteruppsats: realistisk eventgenerator för breakupreaktioner i proton-deuteron kollisioner

För mig personligen har jag hittills haft stort utbyte av att under 2012 verka i den stimulerande forskningsmiljö som KTH kärnfysikgrupp utgör. Så gott som allt mitt analys- och simuleringsarbete sker på KTH. Jag är fast övertygad om att en fortsatt anknytning skulle resultera i fortsatt god utveckling av samarbetet och ge konkret utbyte i forskningsresultat.

Med vänliga hälsingar,

Pia Thörngren Engblom
Docent i kärnfysik

KTH, Fysik
AlbaNova Unversitetscentrum
106 91 Stockholm

Bilagor:

1. Curriculum Vitœ
2. Publikationslista

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Email: piate@kth.se

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1. Docent Pia Thörngren Engblom – Curriculum Vitæ

1.1 BIRTH DATE December 7th 1953

1.2 MALE/FEMALE Female

1.3 ADDRESS
Kampementsgatan 36 A n.b.
SE-115 38 Stockholm, Sweden

1.4 CONTACT INFORMATION
AlbaNova University Center
KTH Royal Institute of Technology
Physics Department
School of Engineering Sciences
SE - 106 91 Stockholm, SWEDEN

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Mobile: +46 (0)762 00 9153
Fax: +1-46 (0)8 5537 8216
E-mail: piate@kth.se

ACADEMIC APPOINTMENTS

1.5 CURRENT APPOINTMENT

Researcher (75%) Jan 2013 to Sep 2013
Physics Department, KTH School of Engineering Sciences

1.7 PREVIOUS APPOINTMENTS

Researcher (10%) Jan 2012 Dec 2012
Physics Department, KTH School of Engineering Sciences
- Main functions: Coordinator of the PAX Collaboration Analysis Group Spokesperson of COSY Exp. Proposal 202.1
- Main focus: spin observables in few-nucleon reactions, experiments in preparation for electric dipole moment searches, longitudinal spin filtering

Researcher Jan 2011 to Dec 2012
Department of Physics, University of Ferrara
- Main functions: Coordinator of the PAX Analysis Group (spin-filtering experiment and breakup reactions), Spokesperson of COSY Letter-of-Intent and Proposal 202
- Main focus: spin filtering, spin observables in few-nucleon reactions

Researcher (50-75%) Jan 2009 to Jan 2011
Physics Department, Stockholm University
- Main function: Researcher, Spokesperson of COSY Letter-of-Intent 202
- Main focus: spin filtering, spin observables in few-nucleon reactions

Associate Professor *(Universitetslektor)* (50%) Oct 2008 to Jan 2010
Department of Electronics, Mathematics and Natural Sciences, University of Gävle
- Main function: Lecturer
- Main focus: physics and astronomy courses, course development

Researcher/Project Leader Jan 2007 to Aug/Dec 2008
Department of Physics and Astronomy/Centre for Gender Research/
Equalities Office, Uppsala University
- Main function: Researcher, Supervisor, Project Leader
- Main focus: hadron physics, gender equality

Researcher March 2006 to Dec 2006
Department of Physics and Astronomy, Uppsala University
- Main functions: Supervisor, Lecturer and Course responsible
- Main focus: hadron physics, double-meson production

Assistant Professor *Forskarassistenttjänst* May 2001 to Feb 2006
funded by the Swedish Research Council
Department of Physics and Astronomy, Uppsala University
- Main functions: Researcher, Supervisor, Lecturer, Spokesperson of CELSIUS Exp. Proposal CE65 *Study of two-pion production in pd and dd reactions*

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- Main focus: hadron physics, double-meson production, spin physics, three-nucleon force, analysis method development, teaching 20%.

Postdoctoral Research Associate June 1999 to April 2001
funded by the Swedish Research Council
Department of Physics and Astronomy, Uppsala University
- Supervisor: Professor Bo Höistad
- Main focus: single and double pion-production, Spokesperson of CELSIUS Exp. Proposal CE65 *Study of two-pion production in pd and dd reactions*

Postdoctoral Research Associate Aug 1997 to May 1999
Indiana University Cyclotron Facility, Bloomington, Indiana, USA
- Supervisor: Professor Hans Meyer
- Main focus: polarization in few-nucleon reactions, PINTEX collaboration

2. Academic Competence

Docent (Habilitation) in Nuclear Physics, Uppsala University Nov 2003
- Docent lecture title: *Probing the spin dependence of the three-nucleon force*

2.1 Academic Education

Stockholm University, Physics Department
Ph.D., Doctor of Philosophy in Physics June 1997
- Thesis title: *Development of a zero-degree spectrometer in CELSIUS and the* $d + d \rightarrow {}^4He + 2\pi$ *reaction close to threshold*, ISBN/ISSN: 9171536329, 9789171536327
- Supervisors: Professor Christoph Bargholtz, Professor Per-Erik Tegnér
- Area of Study: meson production, solid state detector technology in storage rings

Fil. Lic., Licentiate of Philosophy in Physics July 1996
- Thesis title: *A zero-degree spectrometer in CELSIUS and the* $d(d, 2\pi)^4He$ *reaction*, USIP-96-03
- Supervisors: Professor Christoph Bargholtz, Professor Per-Erik Tegnér
- Area of Study: meson production, germanium detector technology in storage rings

B.S., Bachelor of Science in Physics Sep 1990
- Thesis title: *Cosmic ray muons as a calibration source for high-energy gamma-ray detectors*, USIP-90-06

2.2 Other Education

University College of Dance and Circus Aug 1983 - June 1984
- Pedagogical Diploma in classical ballet, *one-year education and accreditation for professional dancers*

Balettakademien, Stockholm Aug 1972 - June 1974
- Professional dancer education, *scholarship student*

3. Scientific Excellence

3.1 International Networks

- Member of the Nuclear Physics Commission C12 2006-2011
  Swedish representative among 14 members from North and South America, Asia, Europe and Australia. C12 is one of 20 commissions joined in the International Union for Pure and Applied Physics (IUPAP). Its objective is to enable international cooperation, aiming to help in the application of physics toward solving problems of concern to humanity. The commission appoints the Young Scientist Prize and support international, topical and regional conferences.
- Member of the European Research Committee on Few Body Problems in Physics (ERCFBP) 2004-2007
- Member of the American Physical Society since 1997

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3.2 International Collaborations and Leadership

Research Interests

Fundamental symmetries: precision studies to control the spin of particles in a polarized beam; preparation for a search of a permanent particle electric dipole moment which is related to the issue of the excess of matter over antimatter in the universe.
Nucleon structure: feasibility tests and commissioning experiments for the production of polarized antiproton beams, spin structure and transversity of the proton.
Symmetries of low-energy QCD: spin observables and precision as selection tools testing the predictive power of chiral effective field theory.
Hadron physics: polarization and the analysis of spin observables in few-nucleon reactions, three-body forces, meson production.

Being an experienced researcher with expert skills in spin physics I was asked to join the PAX Collaboration in a leading and coordinating role in data analysis and simulations. The PAX' analysis and simulations group have members from Italy, Georgia, Germany and Russia. The results of our two concluded experiments at COSY have been published in Physics Letters B, a high-impact journal. I supervise a Swedish PhD student in this context. I am the spokesperson of COSY Exp. 202 and as such I have initiated a close collaboration with leading theorists in the field of chiral effective field theory, Prof. Evgeny Epelbaum and Dr. Andreas Nogga.

A research group at IKP, Jülich, Germany, has together with University of Aachen started long term projects for the preparation of experimental searches for processes that violate fundamental symmetries; the JEDI Collaboration with institute members in Germany, Italy, Georgia, Belarus, Russia, Poland and the US. I represent KTH as the so far only Swedish member. We collaborate with Dr. Ed Stephenson (IUCF) and the Storage Ring Electric Dipole Moment Collaboration, EDM@BNL at Brookhaven, USA. Ed Stephenson, Dr. Greta Guidoboni and myself form one analysis group.

Listed present collaborations:

- The EDM@COSY experiment, Spokesperson Ed Stephenson 2013 -
  The JEDI Collaboration Spokespersons Prof. Dr. Jörg Pretz, PD Dr. Andreas Lehrach and PD Dr. Frank Rathmann,
  Analysis and experiment since February 2013
- Collaboration with theorists Dr. Andreas Nogga and Prof. Evgeny Epelbaum 2009-
  IKP Forschungszentrum Jülich and Bochum University, Germany
- The PAX Collaboration Polarization Antiproton eXperiments 2008-present
  Spokespersons: PD Dr. Frank Rathmann and Dr. Paolo Lenisa
  Coordinator of PAX Analysis Group, Spokesperson COSY Proposal 202.1, Visiting Scientist at IKP-FZJ and COSY during 1-2 months per year

Previous Scientific Collaborations

- The CELSIUS/WASA collaboration, Wide Angle Shower Apparatus 1999-2007
  Spokesperson: Bo Höistad
  Postdoc and Senior Member, Spokesperson for CELSIUS Exp. Proposal CE65
  My proposal initiated a revisiting of the so called ABC effect, an anomaly in the production of two pions in the isospin zero channel, related to the σ boson that is responsible for the intermediate range attraction in the nucleon-nucleon force, i.e. the force that holds nuclei together. More than ten papers were published by the CELSIUS-WASA Collaboration on this topic.
- The PINTEX collaboration, Polarized INternal Target EXperiments 1997-2004
  Indiana University Cyclotron Facility, Bloomington Indiana,
  Spokesperson: Hans Meyer

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Postdoc and Senior Member; Shiftleader and Visiting Scientist at IUCF eight periods of 2-4 weeks after the postdoc period: I participated in experiments as shift leader, was responsible in data analysis and I developed the *Sampling method*, a general analysis method of three-particle final states, together with the PI and a postdoc in theory, Dr. Joanna Kuros.

3.4 INVITED TALKS SEMINARS CONFERENCE CONTRIBUTIONS SINCE 2003

- Invited conference talk on *PAX and polarized antiproton beams*, 11th international conference on Low Energy Antiproton Physics, LEAP 2013, June 10-15 2013, Ångström Laboratory, Uppsala, Sweden
- Seminar, *A complete double polarized pd breakup experiment for testing chiral effective field theory*, November 9th 2012, Nuclear Physics Division, Department of Physics, KTH, Stockholm, Sweden
- Invited talk parallel session, *A complete polarized low-energy proton-deuteron breakup experiment*, The 20th International Symposium on Spin Physics SPIN2012, September 17 - 22, 2012, JINR, Dubna, Russia
- Invited talk plenary contribution, *Extensive high precision studies of proton deuteron breakup reactions at COSY*, 8th International Conference at Storage Rings, STORI'11, October 9-14 2011, Laboratori Nazionali di Frascati, Roma, Italy
- Invited talk parallel session, *New experimental approach to modern three-nucleon forces*, Member of the local organizing committee, 19th International Spin Physics Symposium SPIN2010, September 27 - October 2, 2010, Forschungszentrum Jülich, Germany
- Organizer with P.-E. Tegnér, Stockholm Hadron Physics Week in conjunction with XXXIII PANDA Collaboration Meeting, Stockholm June 14-18, 2010
- Invited talk on behalf of the PAX Collaboration, *Polarized antiprotons, WP25: PolAntiP*, Joint Research Activity HadronPhysics3 Kick-off Meeting, September 18th 2010, Paris, France
- Invited talk, *Road map to polarized antiproton experiments with PAX*, Annual Meeting Netværk for Kvinder i Fysik i Danmark og Women in Physics in Sweden, in conjunction with Danish Physical Society Nordic Meeting, June 15 2009, Danmarks Tekniske Universitet, Copenhagen, Denmark
- Chair of the organizing committee and initiator of the conference *Crossing Perspectives on Gender and Physics*, a joint collaboration project between the Nordic Network for Women in Physics (NorWip) and the GenNa project, September 17-19 2008, Ångström Laboratory, Uppsala
- Invited talk, *Realistic experimental constraints in the analysis of few-body reactions*, ANKE/PAX Workshop on Spin Physics, May 29 - June 1 2007, Univ. of Ferrara, Italy
- Talks: *International Union for Pure and Applied Physics (IUPAP) C12 and WG9*; *Theoretical predictions and realistic constraints in few-nucleon experiments*, XXVII Annual Meeting of Swedish Nuclear Physicists, November 13-14 2007, Gothenburg, Sweden,
- Contribution talk, *Few-body reactions and the sampling method*, International Nuclear Physics Conference, INPC2007, June 3-8 2007, Tokyo, Japan,
- Invited seminar, *Relations between experiment and theory in few-body final states*, Theoretical Physics Seminar series at BNL, November 2nd 2006, Brookhaven National Laboratory, Uptown, New York, USA
- Contribution talk, *Anisotropy in the angular distribution of* $pp \to pp\pi^0$ *at 400 MeV*, MESON2006, June 9-13 2006, Krakow, Poland

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- Contribution talk, *The production of two pions in the isospin zero channel*, EtaMesonNet Workshop on production and decay of η and $\eta\prime$, September 15 - 18 2005, Krakow, Poland
- Invited seminar, *Realistic experimental constraints in few-body problems and the Sampling method*, Department of Radiation Sciences, September 2nd 2005, Uppsala University, Uppsala, Sweden
- Invited overview talk, *Experimental studies of the spin dependence in few-nucleon systems*, Hadron Physics Workshop at COSY, July 25-29 2005, Physikzentrum Bad Honnef, Germany
- Contribution talk, *The experimental search for evidence of the three-nucleon force & A new analysis method*, XXIV Annual Meeting of the Swedish Physical Society, November 11-12, 2004, Uppsala University
- Invited overview talk, *Spin dependence in pd interactions at intermediate energies*, Caucasian-German School and Workshop on Hadron Physics, August 30 - September 4 2004, Tbilisi, Georgia
- Contribution talk, *Experimental search for evidence of the three-nucleon force and a new analysis method,* 19th European Few-Body Conference, August 23-27 2004, Groningen, The Netherlands
- Invited Docent Seminar, *Probing the spin dependence of the three-nucleon force*, November 2003, Ångström Laboratory, Uppsala University

3.6 OTHER

See separate enumerated Publication list

GRANTS AND AWARDS

European Commission CORDIS

- 7th Framework Programme, Capacities, Research Infrastructures, 68 kEuro 2012-2014

  Project title: Study of Strongly Interaction Matter (HadronPhysics3), Work Package 25 Polarized Antiprotons (PolAntiP); grant agreement no. 283286; Activity Leader KTH, Member of Governing Board
- 7th Framework Programme, Capacities, Research Infrastructures, 68 kEuro 2009-2011

  Project title: Study of Strongly Interaction Matter (HadronPhysics2), Work Package 25 Polarized Antiprotons (PolAntiP); grant agreement no. 227431; Activity Leader SU, Member of Governing Board
- Travel funds for research stays at COSY, Jülich, Germany 2012-2013

  Transnational Access to COSY, Work Package 13(14), Hadronphysics2 (3)

Swedish Research Council

- Travel grants for research stays in Jülich, Germany, 71 kSEK 2010-2011
  PAX Collaboration, experiment at COSY and collaboration meetings
- Travel grants for international representation, 97 kSEK 2008-2010
- 4-year grant for employment as Assistant Professor, 2.9 MSEK 2000-2005
  Hadron Physics - Few-Body Systems and Meson Production
  Starting date 2001-05-01 at Uppsala University

Göran Gustafsson Foundation, 50 kSEK 2000
Research grant no. 0195, 2001-07-01

Nominated for *Best thesis of the year in the natural sciences* 1997
representing the Department of Physics, Stockholm University

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Fredrika Bremer-förbundet grant for physics studies 1994

NorFA grant for graduate course *Nucleon-nucleon interaction* 1996
Lecturer Professor M. Hjorth-Jensen, Oslo University

Royal Swedish Academy of Sciences grant for summer school and conference 1995
8th Indian-Summer School on Intermediate-Energy Physics; Mesons and Light Nuclei '95,
Lecturers: V. Burkert, N. Kaiser, G. Ripka, R. Timmermans, J.M. Nieves
Prague, Czech Republic, July 3 - 15, 1995

4 Pedagogical Excellence

Pedagogical credentials

- Certificate from Supervisor Course, *Handledning utan gränser*, 3 credits (3 weeks FTE), Uppsala University Fall 2005
- Certificate from Pedagogical Course for University Teachers, 4 credits (4 weeks FTE), Uppsala University 2001 Fall 2001

4.1 Individual Student Advising

Supervisor for

- Fil. Lic. Klas Marcks von Würtemberg, Stockholm University, dissertation planned fall semester 2013
- Dr. Karin Rathsman, dissertation *Modeling of Electron Cooling: Theory, Data and Applications*, Uppsala University 2010
- Dr. Samson Negasi Keleta, dissertation *Double Pion Production in dd-Collisions* 2008
  Licentiate thesis *A Study of the WASA detector Using the Reaction* $pp \rightarrow pp\pi^0$ *at 400 MeV* (2006)

Individual Mentor for

- Dr. Susanna Bertelli, dissertation *Proton induced deuteron breakup reaction studies at COSY*, University of Ferrara, Italy 2011

4.2 Teaching Merits

- Lecturer, Course Coordinator: *Astronomy*(with course development), *Space and Weather*, *Astro- and Geophysics with didactics*, *Theoretical Methods in Physics*, *Foundations of Quantum Mechanics*, kursplaner, University of Gävle
- Lecturer, Course Coordinator: *Quantum Physics*, Engineering program 3rd year, Energy systems, Uppsala University
- Experimental Instructor: Laboratory assignment development and instruction, *The Art of Measurement - Metrology*, graduate course with Prof. Leslie Pendrill, Uppsala University and Swedish National Testing and Research Institute
- Laboratory Instructor (STINT Fellow): *Modern physics and fundamental constants*, Sophomore laboratory course with Prof. B.M.K. Nefkens, UCLA, USA
- Lecturer: Nuclear Physics in *Modern Physics*, Engineering program 3rd year, Uppsala University
- Lecturer and Exercises: *Elementary Statistics and Error Analysis* (with course development), *Introductory Computer and Programming*, Stockholm University

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- Laboratory Instructor: *Nuclear Physics Laboratory*, Stockholm University

Quotes from students' evaluations:
University of Gävle (2005):
"Jag tycker att under alla mina år på högskolan i Gävle så har jag aldrig haft en så bra lärare som Pia. Hon har verkligen sett till att alla hängde med på föreläsningarna. Bästa pedagogiken och man fick ännu mera mod att ställa frågor, vilket man kanske ej gör i vanliga fall." (2005)
UCLA, USA (2005):
"Pia was one of the best, most knowledgeable TA's I have encountered in the physics department. I hope she comes back soon."
"The TA is very knowledgeable and very helpful. She explains the concepts step by step and does a good job in emphasizing the important points. Also, her very friendly atmosphere makes it very easy and comfortable to ask for help.""
"Pia rocked. Not in the Lenni Kravitz, but more in the Richard Feynman way.""
Uppsala University (2006):
Mean value of all evaluation questions: 4.2 (1-5 scale)

POPULAR PRESENTATIONS

- Invited research presentation at AlbaNova University Centre for master students, Berlin and Uppsala Summer School Diversity in the Cultures of Physics (August 6 - 31 2012) arranged by Freie Unversität Berlin and Uppsala University
- Invited talk at Teachers' Conference, *Modern physics and fundamental constants*, 100 år med Albert Einstein, November 18-19 2005, Ångström Laboratory, Uppsala, Sweden
- Kvinnor i Fysik *Women in Physics*, historical review article, contribution to KOSMOS 2004: 111-142, annually published by The Swedish Physical Society with Gabriella Andersson et al.,
- *Fysik och svensk historieskrivning*, Article on the Nobel Prize for nuclear fission and the lack of Swedish recognition of the contributions to the discovery of Prof. Lise Meitner, Fysikaktuellt 2003 nr 4, Swedish Physical Society newsletter published four times annually
- Invited talk at High School Teachers Conference on the subject 'Women in Physics' at 'Uppsala Naturvetardagar', arranged by Prof. Gunnar Tibell, Atrium Konferens, Nov 29-30 2002, Uppsala, Sweden
- Invited physicist to lead physics 'hands on' workshops at 'Conference for Girls on Careers in Math, Science and Technology', outreach seminars aimed at junior high school students, March 1998 & 1999, Indianapolis, USA
  Evaluation reference Carla Bennet: "...the evaluation forms from the facilitators, volunteers and girls were GLOWING. The girls especially enjoyed the interactive hands-on nature of your workshop. Thanks again for being a wonderful role model and for displaying enthusiasm for your physics career."

5 LEADERSHIP EXCELLENCE

Scientific leadership see under item 3.

COURSES LEADERSHIP CREDENTIALS

- Leadership Course, *Att leda som kvinna*
  Leader: Barbro Dahlbom-Hall — Mar - Dec 2008
- Leadership Course, *Organizational and personal development*
  Leader: Britt Frei, Integro Utbildning — Nov 2005

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5.1 LEADERSHIP IN THE SWEDISH COMMUNITY

- Coordinator of a *Mentor Program for Junior Women Faculty* 2004-2007
  Matching mentors and mentees, organizing workshops and leading seminars.
  Appointed by the Faculty of Science and Technology, Uppsala University
- Board member of the Swedish Nuclear Physicists' Society 2000-2004
- Election committee member, initiator of a new section Women in Physics of the Swedish Physical Society 2001-2002
- Member of the organizing committee of the first meeting for Women in Physics in Sweden (WiPS), *Women Talking Physics*, Ångström Laboratory, Uppsala, March 23, 2001. Co-founder of the Network for Women in Physics in Sweden

5.2 LEADERSHIP IN SERVING THE COMMUNITY (EXTERNALLY)

- Expert referee in the Panel in Physics1 for The Research Council of Norway 2011-2012
- Invited Topic chair and Discussion leader with plenary talk 2002
  Learning from Regional Differences, The 1st International Conference for Women in Physics, IUPAP, March 8 2002, UNESCO Headquarters, Paris, France.
  For the first time women physicists were organized internationally, I was appointed co-chair and co-organizer with Elisa Molinari of the session on regional differences with approximately 80 conference attendees from 42 countries.

6 COOPERATION UNIVERSITIES

THESIS REFEREEING AND COMMITTEES

- Doctor Europaeus referee, Dr. Paolo Benati, University of Ferrara, Italy 2012
  Development of a new trigger system for spin-filtering studies
- Member of Ph.D. thesis committee, Dr. Henrik Jäderström, Uppsala University 2008
  Fragmentation in Proton-Nucleus Reactions from 100 to 1400 MeV
- Member of Ph.D. thesis committee, Dr. Martin Olsson, Uppsala University 2005
  String theory at the horizon
- Opponent for licentiate defence, Dr. Linda Gerén, Stockholm University 2004
- Member of Ph.D. thesis committee, Dr. Fredrik Edling, Uppsala University 2004
  DIXI - a Hybrid Pixel Detector for X-ray Imaging
- Member of Ph.D. thesis committee, Dr. Axel Lindroth, Uppsala University 2000
  Octupole Collectivity and E1 Moments in Neutron Rich Nuclei
- Member of Ph.D. thesis committee, Dr. Anders Gårdestig, Uppsala University 2000
  As simple as ABC - the dd $\rightarrow$ X reaction explained

OUTREACH ACTIVITIES

- Invited panel debate member to the conference *DRAW THE LINE, Cultural boundary making in everyday academic work life*, May 30-31 2008, an EU funded project: UP-GEM (Understanding Puzzles in the Gendered European Map, Technical University of Denmark, Lyngby, Denmark
- Invited panelist to the Round Table Discussion, *Women in Research and Public Policy*, Third Annual Meeting of Nordic Network for Women in Physics (NorWiP), August 16-17 2007, Technical University of Denmark, Lyngby, Denmark,
- Invited seminar, *Fysikers forskaridentitet i Jämställdlandia*, April 24 2007, Centre for Gender Research, Uppsala University

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MISCELLANEOUS

- Programming and computing:
  Fortran, C++, Root, Paw, Pascal, Maple, Mathematica, LaTeX
- Operative systems: experienced user of linux, unix, windows xp, macOS
- Languages: Swedish (native), English (fluent), French and Spanish (highschool level)

OTHER PROFESSIONAL EXPERIENCE

Choreographer and dancer:
Blad vänder sig, Moderna Dansteatern, Stockholm — Mar 1987
Trois Dances music by Jehan Alain, Johannes kyrka, Stockholm — Feb 1986
Member of the ballet ensemble, **Norrköpings Stadsteater**, — July 1981-June 1982
Member of the dance company, **Cramérbaletten, Riksteatern** — Jan 1980-June 1981
selected works, *Det falska spöket (soloist)*, Choreographer Mary Skeaping
Döderhultarn, Eko, Choreographer Mats Isaksson
Dancer, **Den selvejende Inst. Teaterprod. Salome**, Copenhagen — Aug 1978-May 1979
Choreographer Flemming Flindt
Dancer, **Pakhus 13 Ny Dansk Balletgruppe**, Copenhagen — Aug 1977-Dec 1977
Music by Stravinsky *Le Sacre du Printemps, L'Histoire du Soldat (soloist)*
Choreographer Eske Holm
Dancer, **Riksteatern** — Jan 1976-Dec 1976
Musicals *Gungbrädan, Chicago*, Director Hans Bergström
Dancer, **Stockholms Stadsteater, Klarateatern** — Aug 1973-June 1974
Galakväll, music by Gugge Hedrenius
Dancer, **Sandrew Film & Teater AB**, Stockholm — Jan 1973-May 1973
Sånt Folk, Playwright Calle Z, Choreographer Herman Howell

OTHER GRANTS

Carina Ari Memorial Foundation — 1984, 1978, 1975
Scholarships for young dancers, 10kSEK, 6 kSEK, 6 kSEK

Sandrews Foundation — 1974
Stipend for encouragement

INTERESTS

Choir singing (I am the chair of *Skönstavikskören*, a mixed choir in Stockholm where I sing soprano), Dance, Feldenkrais sensorimotor training, Literature.

MORE INFORMATION

WWW: LinkedIn: http://www.linkedin.com/pub/pia-thorngren-engblom/14/b88/143.
WWW: ResearchGate: https://www.researchgate.net/profile/P_Thoerngren_Engblom/?ev=hdr_xprf.

Stockholm May 16th 2013

Pia Thörngren Engblom

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Publication list

P.Thörngren Engblom

SPIRES data base April 2013

Peer-reviewed articles

1. **"Polarization of a stored beam by spin-filtering,"**
   W. Augustyniak, L. Barion, S. Barsov, U. Bechstedt, P. Benati, S. Bertelli, V. Carassiti and D. Chiladze *et al.*, [PAX Collaboration], Phys. Lett. B **718**, 64 (2012).

2. **"Exclusive Measurement of the $pp \to nn\pi^+\pi^+$ Reaction at 1.1 GeV"**
   T. Skorodko *et al.* [CELSIUS/WASA Collaboration]
   Eur. Phys. J. A **47**, 108 (2011) [arXiv:1012.1463 [nucl-ex]]

3. **"eta-meson production in proton-proton collisions at excess energies of 40 and 72 MeV"**
   H. Petren *et al.*
   Phys. Rev. C **82**, 055206 (2010)

4. **"Delta Delta Excitation in Proton-Proton Induced pi0pi0 Production"**
   T. Skorodko *et al.*
   Phys. Lett. B **695**, 115 (2011) [arXiv:1007.0405 [nucl-ex]]

5. **"Production of eta and 3pi mesons in the $pd \to {}^3HeX$ reaction at 1360 and 1450 MeV"**
   K. Schonning *et al.*
   Eur. Phys. J. A **45**, 11 (2010) [arXiv:1001.4604 [nucl-ex]]

6. **"The pd $\to {}^3He$ eta pi0 reaction at T_p = 1450 MeV"**
   K. Schonning *et al.* [CELSIUS/WASA Collaboration]
   Phys. Lett. B **685**, 33 (2010) [arXiv:0911.1012 [nucl-ex]]

7. **"Exclusive Measurements of pp → dpi+pi0: Double-Pionic Fusion without ABC Effect"**
   F. Kren *et al.* [CELSIUS/WASA Collaboration]
   Phys. Lett. B **684**, 110 (2010) [Erratum-ibid. B **702**, 312 (2011)] [arXiv:0910.0995 [nucl-ex]]

8. **"Two-Pion Production in Proton-Proton Collisions – Experimental Total Cross Sections and their Isospin Decomposition"**
   T. Skorodko *et al.*
   Phys. Lett. B **679**, 30 (2009) [arXiv:0906.3087 [nucl-ex]]

9. **"Exclusive measurement of two-pion production in the dd → 4Hepipi reaction"**
   S. Keleta *et al.*
   Nucl. Phys. A **825**, 71 (2009) [arXiv:0904.2699 [nucl-ex]]

10. **"Production of the omega meson in the pd → 3He omega reaction at 1450 MeV and 1360 MeV"**
    K. Schonning *et al.* [CELSIUS/WASA Collaboration]
    Phys. Rev. C **79**, 044002 (2009) [arXiv:0902.3905 [nucl-ex]]

11. **"Polarizing a stored proton beam by spin flip?"**
    D. Oellers *et al.*, [PAX Collaboration],
    Phys. Lett. B **674**, 269 (2009) [arXiv:0902.1423 [nucl-ex]]

12. **"Polarisation of the omega meson in the pd→3He+omega reaction at 1360 and 1450 MeV"**
    K. Schonning *et al.* [CELSIUS/WASA Collaboration]
    Phys. Lett. B **668**, 258 (2008) [arXiv:0806.2945 [nucl-ex]]

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13. **"Double-Pionic Fusion of Nuclear Systems and the ABC Effect – Approaching a Puzzle by Exclusive and Kinematically Complete Measurements"**
M. Bashkanov *et al.*
Phys. Rev. Lett. **102**, 052301 (2009) [arXiv:0806.4942 [nucl-ex]]

14. **"The WASA Detector Facility at CELSIUS"**
C. Bargholtz *et al.* [CELSIUS/WASA Collaboration]
Nucl. Instrum. Meth. A **594**, 339 (2008) [arXiv:0803.2657 [nucl-ex]]

15. **"Measurement of eta meson decays into lepton-antilepton pairs"**
M. Berlowski *et al.*
Phys. Rev. D **77**, 032004 (2008)

16. **"Measurement of lepton decays of the eta meson"**
M. Berlowski *et al.* [CELSIUS/WASA Collaboration]
Phys. Rev. D **77**, 032004 (2008) [arXiv:0711.3531 [hep-ex]]

17. **"Measurement of the Slope Parameter for the eta→3pi0 Decay in the pp→pp eta Reaction"**
M. Bashkanov *et al.*
Phys. Rev. C **76**, 048201 (2007) [arXiv:0708.2014 [nucl-ex]]

18. **"Anisotropy in the pion angular distribution of the reaction pp → pp pi0 at 400 MeV"**
P. Thorngren Engblom *et al.*
Phys. Rev. C **76**, 011602 (2007) [arXiv:nucl-ex/0609003]

19. **"Measurement of the eta→pi+pi-e+e- decay branching ratio"**
C. Bargholtz *et al.* [CELSIUS-WASA Collaboration]
Phys. Lett. B **644**, 299 (2007) [arXiv:hep-ex/0609007]

20. **"The p p -→ p p pi pi pi reaction channels in the threshold region"**
C. Pauly *et al.* [CELSIUS-WASA Collaboration]
Phys. Lett. B **649**, 122 (2007) [arXiv:nucl-ex/0602006]

21. **"Analyzing Powers and Spin Correlation Coefficients for p+d Elastic Scattering at 135 and 200 MeV"**
B. v.Przewoski, H.O. Meyer, J.T. Balewski, W.W. Daehnick, J. Doskow, W. Haeberli, R. Ibald, B. Lorentz, R.E. Pollock, P.V. Pancella, F. Rathmann, T. Rinckel, Swapan K. Saha, B. Schwartz, P. Thörngren-Engblom, A. Wellinghausen, T.J. Whitaker, and T. Wise
Phys. Rev. C **74**, 064003 (2006) [arXiv:nucl-ex/0411019]

22. **"Exclusive measurements of p d -→ He-3 pi pi: The ABC effect revisited"**
M. Bashkanov *et al.* [CELSIUS-WASA Collaboration]
Phys. Lett. B **637**, 223 (2006) [arXiv:nucl-ex/0508011]

23. **"Axial observables in dp breakup and the three-nucleon force**
H.O. Meyer, T.J. Whitaker, R.E. Pollock, B. von Przewoski, T. Rinckel, J. Doskow, J. Kuros-Zolnierczuk, P.V. Pancella, T. Wise, P. Thorngren-Engblom, B. Lorentz, F. Rathmann,
Phys. Rev. Lett. **93**, 112502 (2004)

24. **"Faddeev calculations of break-up reactions with realistic experimental constraints"**
J. Kuros-Zolnierczuk , P. Thörngren Engblom , H.-O. Meyer , T. J. Whitaker, H. Witala, J. Golak, H. Kamada, A. Nogga, and R. Skibinski
Few Body Syst. **34**, 259 (2004) [arXiv:nucl-th/0402030]

25. **"Measurement of the pd −→ pd eta cross section in complete kinematics"**
R. Bilger *et al.*
Phys. Rev. C **69**, 014003 (2004)

26. **"Spin exchange in polarized deuterium**
B. v.Przewoski, H.O. Meyer, J. Balewski, W.W. Daehnick, J. Doskow, W. Haeberli, R. Ibald, B. Lorentz, P.V. Pancella, R.E. Pollock, F. Rathmann, T. Rinckel, Swapan K. Saha, B. Schwartz, P. Thörngren Engblom, A. Wellinghausen, T.J. Whitaker, T. Wise, Phys. Rev. A**68**, 042705 (2003)

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27. **"Spin correlations in p(pol.) p(pol.) --→ p n pi+ pion production near threshold"**
W.W. Daehnick, Swapan K. Saha, R.W. Flammang, H.O. Meyer, J. Balewski, R.E. Pollock, B. v. Przewoski, T. Rinckel, P. Thörngren-Engblom, A. Wellinghausen, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise and P.V. Pancella
Phys. Rev. C **65**, 024003 (2002) [arXiv:nucl-ex/0108021]

28. **"Measurement of the pd —→ He-3 eta cross section between 930 and 1100 MeV"**
R. Bilger *et al.*
Phys. Rev. C **65**, 044608 (2002)

29. **"Measurement and analysis of the p d → He-3 eta reaction between 930-MeV and 1100-MeV"**
J. Zlomanczuk *et al.* [WASA-PROMICE Collaboration]
Acta Phys. Polon. B **33**, 883 (2002)
Prepared for 6th TAPS Workshop, Krzyze, Poland, 9-13 Sep 2001

30. **"Complete set of polarization observables in p polarized p polarized —→ pp pi 0 close to threshold"**
H.O. Meyer, A. Wellinghausen, J.T. Balewski, J. Doskow, R.E. Pollock, B. v. Przewoski, T. Rinckel, P. Thörngren-Engblom, L.D. Knutson, W. Haeberli, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise, W.W. Daehnick, Swapan K. Saha, and P.V. Pancella
Phys. Rev. C **63**, 064002 (2001)

31. **"Cross sections of the p p → p p pi0 reaction between 310-MeV and 425-MeV"**
R. Bilger *et al.*
Nucl. Phys. A **693**, 633 (2001)

32. **"Observation of a Large Longitudinal Analyzing Power in a Nuclear Reaction,**
H.O. Meyer, L.D. Knutson, J.T. Balewski, W.W. Daehnick, J. Doskow, W. Haeberli, B. Lorentz, P.V. Pancella, R.E. Pollock, B. v.Przewoski, F. Rathmann, T. Rinckel, Swapan K. Saha, B. Schwartz, P. Thörngren-Engblom, A. Wellinghausen, T. Wise, Phys. Lett. B 480, 7 (2000)

33. **"Measurement of spin correlation coefficients in p(pol.) p(pol.) --→ d pi+"**
B. v. Przewoski, J.T. Balewski, J. Doskow, H.O. Meyer, R.E. Pollock, T. Rinckel, P. Thörngren–Engblom, A. Wellinghausen, W. Haeberli, B. Lorentz, F. Rathmann, B. Schwartz and T. Wise, W.W. Daehnick, Swapan K. Saha, P.V. Pancella
Phys. Rev. C **61**, 064604 (2000) [arXiv:nucl-ex/9912008]

34. **"Facility for studying spin dependence in pion production near threshold"**
T. Rinckel, P. Thörngren–Engblom, H. O. Meyer, J.T. Balewski, J. Doskow, R.E. Pollock, B. v. Przewoski, F.Sperisen, W.W. Daehnick, R.W. Flammang, Swapan K. Saha, W. Haeberli, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise, P.V. Pancella
Nucl. Instrum. Meth. A **439**, 117 (2000)

35. **"Pionic fusion to a halo state, the d(alpha,Li-6*)pi0 reaction studied close to threshold"**
M. Andersson *et al.*
Phys. Lett. B **481**, 165 (2000)

36. **"Isospin resolved double pion production in the reaction p + d --→ He-3 + 2pi"**
M. Andersson *et al.*
Phys. Lett. B **485**, 327 (2000)

37. **"Measurement of partial-wave contributions in p p --→ p p pi0"**
H.O. Meyer, J.T. Balewski, J. Doskow, R.E. Pollock, B. v. Przewoski, T. Rinckel, P. Thörngren–Engblom, A. Wellinghausen, W. Haeberli, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise, W.W. Daehnick, Swapan K. Saha, P.V. Pancella,
Phys. Rev. Lett. **83**, 5439 (1999) [arXiv:nucl-ex/9907017]

38. **"Spin correlation coefficients in p(pol.) p(pol.) --→ p n pi+ from 325-MeV to 400-MeV"**
Swapan K. Saha, W.W. Daehnick, R.W. Flammang, J.T. Balewski, H.O. Meyer, R.E. Pollock, B. v. Przewoski, T. Rinckel, P. Thörngren Engblom, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise, P.V. Pancella, Phys. Lett. B **461**, 175 (1999) [arXiv:nucl-ex/9907016]

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39. **"Dependence of p(pol.) p(pol.) -→ p p pi0 near threshold on the spin of the colliding nucleons"**
H.O. Meyer, J.T. Balewski, M. Dzemidzic, J. Doskow, R.E. Pollock, B. v. Przewoski, T. Rinckel, F. Sperisen, P. Thörngren Engblom, M. Wolanski, W. Haeberli, B. Lorentz, F. Rathmann, B. Schwartz, T. Wise, W.W. Daehnick, R.W. Flammang, Swapan K. Saha, D.J. Tedeschi, P.V. Pancella
Phys. Rev. Lett. **81**, 3096 (1998) [arXiv:nucl-ex/9807002]

40. **"Polarization lifetime near an induced depolarizing resonance"**
B. von Przewoski, J. Doskow, M. Dzemidzic, H.O. Meyer, R.E. Pollock, T. Rinckel, F. Sperisen, P. Thorngren-Engblom, W.W. Daehnick, R.W. Flammang
Rev. Sci. Instrum. **69**, 3146 (1998)

41. **"The inclusive reaction d + d → He-4 + X 29-MeV above the 2pi0 threshold"**
C . Bargholtz, K. Lindh, N. Ruus, P.E. Tegner, P. Thorngren-Engblom, K. Willemsen Rolander, D. Protic
Phys. Lett. B **398**, 264 (1997)

42. **"A small size zero-degree spectrometer with germanium detectors"**
C. Bargholtz, K. Lindh, N. Ruus, P. E. Tegner, P. Thorngren-Engblom, K. Willemsen Rolander and D. Protic
Nucl. Instrum. Meth. A **390**, 160 (1997)

43. **"Study of the reaction d + d → He-4 + X close to the 2 pi0 threshold"**
C. Bargholtz *et al.*
Phys. Scripta **48**, 65 (1993)

Peer-reviewed conference contributions

1. **"Extensive high-precision studies of proton deuteron breakup reactions at COSY,"**,
P. Thorngren Engblom *et al.* [PAX and ANKE Collaborations],
`http://pos.sissa.it/archive/conferences/150/048/STORI11_048.pdf`, PoS STORI **11**, 048 (2011).

2. **"New experimental approach to modern three-nucleon forces,"**
P. Thorngren-Engblom *et al.* [PAX and ANKE Collaboration], SPIN 2010 Proceedings, Edited by H. Stroeher, F. Rathmann, J. Phys. Conf. Ser. **295**, 012118 (2011).
Prepared for 19th International Spin Physics Symposium (SPIN 2010), Juelich, Germany, 27 Sep - 2 Oct 2010

3. **"THE p p → p p pi0 pi0 reaction and its limiting case, fusion to quasi-bound He-2, in search of the ABC effect"**
T. Skorodko *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **26**, 702 (2011)
Prepared for 11th International Workshop on Meson Production, Properties and Interaction (MESON 2010), Cracow, Poland, 10-15 Jun 2010

4. **"Eta Production In Proton-Proton Collisions At 72-Mev Excess Energy"**
H. Pettersson *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **24**, 446 (2009)
Prepared for 10th International Workshop on Meson Production, Properties and Interaction (MESON 2008), Cracow, Poland, 6-10 Jun 2008

5. **"Isospin Decomposition Of P P → N N Pi Pi Cross Sections: Do We See A Sign Of Delta(1600) Excitation In The N N Pi+ Pi+ Channel?"**
T. Skorodko *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **24**, 450 (2009)
Prepared for 10th International Workshop on Meson Production, Properties and Interaction (MESON 2008), Cracow, Poland, 6-10 Jun 2008

6. **"The P P → D Pi+ Pi0 Reaction: A Case Of Delta Delta Excitation Without Abc-Effect"**
F. Kren *et al.* [CELSIUS-WASA Collaboration]

Int. J. Mod. Phys. A **24**, 561 (2009)
Prepared for 10th International Workshop on Meson Production, Properties and Interaction (MESON 2008), Cracow, Poland, 6-10 Jun 2008

7. **"Excitation of the Roper resonance in single- and double-pion production in nucleon-nucleon collisions"**
T. Skorodko *et al.*
Eur. Phys. J. A **35**, 317 (2008)
Prepared for Workshop on the Physics of Excited Nucleons (NSTAR 2007), Bonn, Germany, 5-8 Sep 2007

8. **"pi pi production in proton proton collisions"**
T. Skorodko *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **22**, 509 (2007)
Prepared for 9th International Workshop on Meson Production, Properties and Interaction (MESON 2006), Cracow, Poland, 9-13 Jun 2006

9. **"Observation of the ABC effect in the first exclusive measurements of p n → d pi0 pi0"**
O. Khakimova *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **22**, 617 (2007)
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10. **"Low-mass pi pi enhancement in baryonic pi pi production: ABC effect revised by exclusive measurements"**
M. Bashkanov *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **22**, 625 (2007)
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11. **"Evidence for a 'narrow' Roper resonance: The breathing mode of the nucleon"**
H. Clement *et al.*
arXiv:nucl-ex/0612015
Proceedings of Summer School and Conference on New Trends in High-Energy Physics: Experiment, Phenomenology, Theory, Yalta, Crimea, Ukraine, 16-23 Sep 2006

12. **"Two-pion production in nucleon nucleon collisions and the ABC-effect: Approaching a puzzle by exclusive and kinematically complete measurements"**
T. Skorodko *et al.*
arXiv:nucl-ex/0612016
Proceedings of Summer School and Conference on New Trends in High-Energy Physics: Experiment, Phenomenology, Theory, Yalta, Crimea, Ukraine, 16-23 Sep 2006

13. **"Two-pion production, gamma gamma line and aspects of sigma meson, Bose-Einstein correlations and isospin breaking"**
H. Clement *et al.* [CELSIUS-WASA Collaboration]
Int. J. Mod. Phys. A **20**, 1747 (2005)
Prepared for 10th International Symposium on Meson-Nucleon Physics and the Structure of the Nucleon (MENU 2004), Beijing, China, 29 Aug - 4 Sep 2004

14. **"On the pi pi production in free and in-medium N N collisions: sigma-channel low-mass enhancement and pi0 pi0 / pi+ pi- asymmetry"**
M. Bashkanov *et al.* [CELSIUS/WASA Collaboration]
Acta Phys. Slov. **56**, 285 (2006)
Prepared for Eta05 Workshop on Production and Decay of eta and eta-prime Mesons, Cracow, Poland, 15-18 Sep 2005

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15. **"Experimental search for evidence of the three-nucleon force and a new analysis method"**
P. Thorngren Engblom *et al.*
AIP Conf. Proc. **768**, 65 (2005) [arXiv:nucl-ex/0410006]
Contributed to 19th European Few-Body Conference on Problems in Physics (EFB 19), Groningen, The Netherlands, 23-27 Aug 2004

16. **"First results of the CELSIUS/WASA experiment"**
I. Koch *et al.* [CELSIUS/WASA Collaboration]
Phys. Scripta **T104**, 29 (2003)
Prepared for 5th International Conference on Nuclear Physics at Storage Rings (STORI 2002), Uppsala, Sweden, 16-20 Jun 2002

17. **"Kinematically complete measurement of the p d → p d eta reaction"**
J. Zlomanczuk *et al.*
Phys. Scripta **T104**, 84 (2003)
Prepared for 5th International Conference on Nuclear Physics at Storage Rings (STORI 2002), Uppsala, Sweden, 16-20 Jun 2002

18. **"Report on the charged decay products identification possibilities in WASA"**
M. Jacewicz *et al.* [CELSIUS/WASA Collaboration]
Phys. Scripta **T104**, 98 (2003)
Prepared for 5th International Conference on Nuclear Physics at Storage Rings (STORI 2002), Uppsala, Sweden, 16-20 Jun 2002

19. **"First results from the CELSIUS/WASA facility"**
S. Kullander *et al.*
Nucl. Phys. A **721**, 563 (2003)
Prepared for 16th International Conference on Particles and Nuclei (PANIC 02), Osaka, Japan, 30 Sep - 4 Oct 2002

20. **"The Celsius/Wasa Detector Facility"**
J. Zabierowski *et al.* [CELSIUS/WASA Collaboration]
Phys. Scripta **T99**, 159 (2002)
Prepared for Workshop on Eta Physics: Prospects of Precision Measurments with the CELSIUS / WASA Facility, Uppsala, Sweden, 25-27 Oct 2001

21. **"The CELSIUS/WASA 4pi detector project"**
H. Calen *et al.*
PiN Newslett. **16**, 238 (2002)
Prepared for 9th International Symposium on Meson - Nucleon Physics and the Structure of the Nucleon (MENU 2001), Washington, District of Columbia, 26-31 Jul 2001

22. **"The Exclusive P + D → He-3 + 2pi Reaction At Celsius"**
M. Andersson *et al.*
Acta Phys. Polon. B **31**, 2123 (2000)
Prepared for Meson 2000 Workshop, Cracow, Poland, 19-23 May 2000

23. **"The Celsius/Wasa 4pi Detector Facility"**
C. Bargholtz *et al.*
Acta Phys. Polon. B **31**, 2249 (2000)
Prepared for Meson 2000 Workshop, Cracow, Poland, 19-23 May 2000

24. **"Pionic Fusion Close To Threshold: D + Alpha → Li-6* + Pi0 At Celsius"**
M. Andersson *et al.*
Acta Phys. Polon. B **31**, 2343 (2000)
Prepared for Meson 2000 Workshop, Cracow, Poland, 19-23 May 2000

25. **"Spin correlation coefficients in p(pol.) p(pol.) → p n pi+ from 325-MeV to 400-MeV"**
S. K. Saha *et al.*
AIP Conf. Proc. **512**, 37 (2000)
Prepared for 4th International Conference on Nuclear Physics at Storage Rings (STORI 99), Bloomington, Indiana, 12-16 Sep 1999

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26. **"WASA detector: Towards rare pion and eta decays"**
H. Calen *et al.* [CELSIUS/WASA Collaboration]
AIP Conf. Proc. **512**, 229 (2000)
Prepared for 4th International Conference on Nuclear Physics at Storage Rings (STORI 99), Bloomington, Indiana, 12-16 Sep 1999

27. **"Initial singlet and triplet spin state contributions to p(pol.) p(pol.) --→ p p pi0"**
P. Thorngren Engblom *et al.*
Nucl. Phys. A **663**, 447 (2000) [arXiv:nucl-ex/9908024]
Contributed to 15th International Conference on Particles and Nuclei (PANIC 99), Uppsala, Sweden, 10-16 Jun 1999

28. **"Polarization observables of p(pol.) p(pol.) --→ p p pi0 near threshold"**
P. Thorngren-Engblom *et al.*
arXiv:nucl-ex/9810013
IUCF-981021(1998)
Contributed to 7th International Conference on Mesons and Light Nuclei 98, Pruhonice, Prague, Czech Republic, 31 Aug - 4 Sep 1998

29. **"Isospin resolved double pion production at CELSIUS"**
M. Andersson *et al.* [WASA/PROMICE Collaboration]
Acta Phys. Polon. B **29**, 2963 (1998)
Prepared for Workshop on the Structure of Mesons, Baryons, and Nuclei, Cracow, Poland, 26-30 May 1998

30. **"Study of the p + d —→ He-3 + 2pi reaction at CELSIUS"**
M. Andersson *et al.* [WASA/PROMICE Collaboration]
Acta Phys. Polon. B **29**, 2969 (1998)
Prepared for Workshop on the Structure of Mesons, Baryons, and Nuclei, Cracow, Poland, 26-30 May 1998

31. **"A zero-degree spectrometer in CELSIUS and the d(d,2pi)He-4 reaction close to threshold"**
C. Bargholtz *et al.*, Presenter P. Thörngren Engblom
Nucl. Phys. A **626**, 73C (1997)
Prepared for 3rd International Nuclear Physics at Storage Rings (STORI 96), Bernkastel-Kues, Germany, 30 Sep - 4 Oct 1996

32. **"Recent activities at CELSIUS"**
T. Bergmark *et al.*
In the Proceedings of 5th European Particle Accelerator Conference (EPAC 96), Sitges, Spain, 10-14 Jun 1996, pp 590-592
Prepared for 5th European Particle Accelerator Conference (EPAC 96), Sitges, Spain, 10-14 Jun 1996

33. **"Two pion production close to threshold in the isospin zero channel"**
C. Bargholtz *et al.*
Acta Phys. Polon. B **27**, 2937 (1996)
Prepared for Workshop on Production, Properties and Interactions of Mesons (MESON 96), Cracow, Poland, 10-14 May 1996

34. **"A zero-degree spectrometer in CELSIUS and the d(d, 2pi)He-4 reaction"**
C. Bargholtz *et al.*, Presenter P. Thörngren Engblom
Few Body Syst. Suppl. **9**, 319 (1995)
Prepared for Conference on Mesons and Light Nuclei, Straz pod Ralskem, Czech Republic, 3-7 Jul 1995

35. **"Experiments with a zero-degree spectrometer at CELSIUS"**
C. Bargholtz *et al.*
Prepared for International Conference on Physics with GeV Particle Beams, Julich, Germany, 22-25 Aug 1994

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36. **"The (Z-A)(d,2pi)((Z+1)-(A+2)) reaction in CELSIUS and effective pion pion interaction"**
C. Bargholtz *et al.*
Prepared for International Conference on Mesons and Nuclei at Intermediate Energies, Dubna, Russia, 3-8 May 1994

Three most cited publications

- **"Complete set of polarization observables in p polarized p polarized $\longrightarrow$ pp pi 0 close to threshold"**
H. O. Meyer *et al.*, Phys. Rev. C **63**, 064002 (2001).
Number of citations: 60 *

- **"The WASA Detector Facility at CELSIUS,"** C. .Bargholtz *et al.* [CELSIUS/WASA Collaboration], Nucl. Instrum. Meth. A **594**, 339 (2008) [arXiv:0803.2657 [nucl-ex]].
Number of citations: 40

- **"Dependence of p(pol.) p(pol.) $\rightarrow$ p p pi0 near threshold on the spin of the colliding nucleons"**
H. O. Meyer *et al.*, Phys. Rev. Lett. **81**, 3096 (1998) [arXiv:nucl-ex/9807002].
Number of citations: 39

- **Citation summary:**
A total 1029 (708) citations for 78 (63) citable papers (published only) analyzed,
Very well-known 2 (0), well-known 1 (1), known 25 (23). The average citation rate is 13.2 (11.2).
INSPIRE data base gives an h-index of 18 (15).

Bilaga 1

KTH Farkost & Flyg

2010-12-20

Skolchef Professor Gustav Amberg
Skolan för Teknikvetenskap
KTH

KTH INDUSTRIAL FACULTY – Anhållan om gästforskare i Fordonsdynamik

Som en del av KTHs satsning "Industrial faculty" anhåller KTH Farkost & Flyg om att adjungera Mats Jonasson, Volvo Car Corporation, född 690208-5510, som gästforskare inom Fordonsdynamik med särskild inriktning mot innovativa fordonskoncept. Vi föreslår att adjungeringen har omfattningen 20% under perioden 2011-03-01 – 2014-02-28, dvs. under 3 år. I Bilaga 1 bifogas Mats Jonassons avsiktsförklaring. Ärendet har också diskuterats med Vicerektor Margareta Norell-Bergendahl, vilken är mycket positiv till att Mats Jonasson knyts till KTH Industrial Faculty.

Vad beträffar finansiering föreslås att den sker inom ramen för riktade medel till forskargruppen inom den strategiska satsningen TRENoP. Vi föreslår att Mats Jonasson fortsätter vara 100 % anställd av VCC. I överenskommelse med VCC (se Bilaga 2) ersätter KTH VCC för lönekostnader motsvarande 176 400 SEK/år. KTH ersätter även resor, logi, arbetsplats på KTH samt relaterade kostnader.

Teknologie Doktor Mats Jonasson är en mycket skicklig forskare, han är innovativ och har ett flertal patent och har stor industriell erfarenhet. I Bilaga 3 bifogas hans Curriculum Vitae samt ansökan där han redogör för vilka områden han avser att driva under denna 3-års period. Detta är alltså en aktiv del i ambitionen att bygga upp KTH industrial faculty inom TRENoP. Genom detta samarbete avser vi att knyta Mats Jonasson till forskargruppen KTH Fordonsdynamik när det gäller både forskning, forskarhandledning samt undervisning. Dessutom är vår gemensamma plan att han efter dessa 3 år skall ha uppnått docentkompetens inom ämnet. Detta är mycket angeläget då det är mycket få inom landet som är docentkompetenta inom detta ämnesområde.

Stockholm KTH som ovan

Peter Göransson
Prefekt

Annika Stensson Trigell
Professor

Bilagor:

1. Brev från Mats Jonasson
2. Brev från Volvo Car Corporation
3. Curriculum Vitae och ansökan från Mats Jonasson

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2010-12-20

Skolchef Professor Gustav Amberg
Skolan för Teknikvetenskap
KTH

Angående rollen som gästforskare i Fordonsdynamik

Mitt namn är Mats Jonasson och jag är anställd på Volvo Personvagnar sedan 1998. Där tillhör jag en gruppering som ansvarar för konstruktion av fordonsdynamiska funktioner i framtida Volvobilar. Under 2009 disputerade jag inom ämnesområdet fordonsteknik på KTH Fordonsdynamik.

Jag är intresserad av att avsätta 20% av min tid under tre år från och med den 1 mars 2011 för att deltaga som gästforskare inom Fordonsdynamik med särskild inriktning mot innovativa fordonskoncept. Jag kommer att engagera mig i KTH industrial faculty inom TRENoP med intention att bidra med kompetens och forskningsresultat för grönare, smartare och säkrare fordonskoncept.

Jag tror att min industriella erfarenhet tillsammans med min akademiska färdighet kommer att vara en fördel i min roll som gästforskare, där jag kommer att bedriva forskning, forskarhandledning och undervisning. Min ambition är också att under avtalsperioden uppnå docentkompetens.

Vänliga hälsningar

Mats Jonasson

bilaga 7

Beträffande gästforskare i fordonsdynamik vid Institutionen för Farkost & Flyg, KTH

Volvo Car Corporation (VCC) välkomnar och stöder initiativet från KTH Fordonsdynamik att göra vår medarbetare Mats Jonasson till Gästforskare i fordonsdynamik med särskild inriktning mot innovativa fordonskoncept vid KTH Fordonsdynamik, Institutionen för Farkost & Flyg, Skolan för Teknikvetenskap vid KTH.

VCC förutsätter att gästforskartjänsten kommer att vara inom teknikområden som är relevanta för VCC. Därför föreslås att Mats Jonasson fortsätter vara 100 % anställd av VCC, men ägnar 20 % av den tiden på KTH.

VCC förväntar sig att KTH betalar VCC för lönekostnader för den del av arbetstiden (20 %) som Mats Jonasson ägnar åt gästforskartjänsten. Beloppet baseras på 20% arbetstid, årsarbetstid 1800 timmar och schablon lönekostnad 490 SEK/h, vilket ger 0.2*1800*490=176400 SEK/år. VCC avser att skicka faktura i efterskott i slutet av varje kalenderår.

KTH har dessutom redan förbundit sig att finansiera resor, logi, arbetsplats på KTH samt relaterade kostnader.

VCC har samarbetat med KTH Fordonsdynamik inom olika doktorandprojekt och undervisning under de senaste 12 åren. Det är VCC's intention att fortsätta det samarbetet.

Med vänliga hälsningar

Göteborg 2010-12-~~22~~ 29

Per-Ola Fuxin

~~Sven-Erik Svensson~~ Per Ola Fuxin
Biträdande Chef Vehicle Engineering, Volvo Cars Corporation

Bilaga 7

CURRICULUM VITAE & APPLICATION

Dr. Mats Jonasson
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1 PERSONAL DATA

1.1 Name:	Mats Jonasson
1.2 Date of birth:	690208-5510
1.3 Gender:	Man
1.4 Home address:	Furulundsvägen 6, 433 49 PARTILLE, +46 31 444445
1.5 Contact address:	Volvo Cars, Dept., PV4B, 105 31, GÖTEBORG, +46 31 592918
1.6 Employment:	Design engineer, Volvo Cars, since 21 November 1998
1.7 Previous positions:	1989-1990 Waves AB, design engineer
	1990-1993 Tele 2, design engineer
	1997-1998 Semcon, design engineer

2 DEGREES, ASSESSMENTS AND EVALUATIONS

2.1	1997	MSc.E.E	Chalmers, Gothenburg, Sweden
	2006	Tekn. Lic	KTH, Stockholm, Sweden
	2010	Tekn. Dr	KTH, Stockholm, Sweden

3 SCIENTIFIC ACHIEVEMENTS

3.1 Description of topic of research

Along with the development towards safe and environmentally friendly vehicles, there has been an increasing interest in improved functions of vehicle dynamics. Since conventional chassis classically are built on a combustion engine base, improvement of vehicle dynamics implies an increased complexity and expensive solutions. Currently, the field maintains significant interest due to the development of hybrid electric vehicles. Here, the electric vehicle becomes an attractive solution due to the opportunity to divide the electric driveline into several electrical machines and allow them to quickly generate torque and revolve independently from each other. If the electrical driveline is distributed closer to the wheels there is a potential to further reduce energy consumption due to less friction losses. Furthermore, when the wheels are allowed to be controlled individually, the trade off between comfort, safety and energy consumption can more easily be tackled.

One example of a long-term chassis concept, with electrical machines mounted inside the wheel, is the Autonomous corner module (ACM). This concept was invented at Volvo Car Corporation in 1998 (see Figure 1a) and further developed by Magna Steyr in collaboration with KTH and VCC (see Figure 1b). The name "autonomous" indicates that wheel forces and kinematics are individually controlled supporting a common task. This solution also possesses the attribute of modularity, meaning that the one module can be re-used at all four corners and

for different vehicle platforms. Figure 1c illustrates the tyre force constrains which is associated to a hybrid vehicle with Autonomous corner modules.

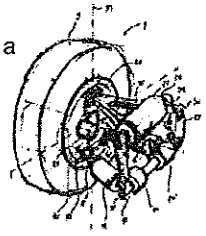
Fig. 1a 

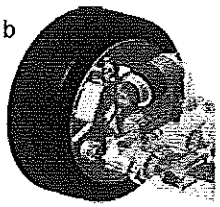
Fig. 1b 

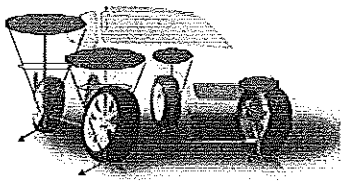
Fig. 1c 

Fig. 1. a) The ACM patent picture from 1998, b) The ACM concept further developed by Magna Steyr, KTH and VCC in 2007 [16] and c) Illustration of tyre force constraints.

One question that has gained particular attention in the research society is how such concepts should be optimally used. Historically, similar problem has been faced in the aircrafts industry to control the relatively large number of rudder compared with the states which are to be controlled (so called over-actuated systems). Using optimal control theory tyre forces can be allocated to satisfy the remuneration to low energy consumption, low tyre wear and exploitation of tyre-to-road adhesion potential.

With the background above in mind, Mats Jonasson worked as a PhD student in the research project "Autonomous corner modules for hybrid vehicles" at KTH from 2004 to 2009 to give response to the following research question:

> *How can individual wheel actuators improve vehicle dynamics and safety and how should the actuators then be used?*

Mats Jonasson gave answers on possible uses of Autonomous corner modules and capacity of new vehicle dynamics functions (2005). A control strategy was specifically developed to handle Autonomous corner modules and similar over-actuated vehicle systems (2005). It was found that this control strategy together with the Autonomous corner module equipped vehicle have an inherent robustness to handle faults events that threaten vehicle stability (2006). In case of actuator fault, the control of the corresponding may be lost. However, the developed mechatronic system admits the remaining wheels to counteract the effect of the non-functional wheel. Thereby, vehicle stability is ensured without any additional need of extra hardware and case-specific fault-handling strategies.

The Autonomous corner module control strategy was further developed by Mats Jonasson to allocate vertical forces between the four wheels (2006). It was also found that Autonomous corner modules utilize the available friction between road and tyre better than conventional vehicles. One key finding turned out was the unsymmetrical left-right longitudinal tyre force allocation that increases the margins towards the friction boundary. Owing to the rear-wheel steering ability of the Autonomous corner modules, it was also found that the mixing between translation and rotation motion during cornering can be controlled to increase the grip.

In collaboration with Magna Steyr, the Autonomous corner module was further developed together with KTH and Volvo Cars to prepare for industrialization (2006-2009). Basis for a complete rolling prototype Autonomous corner vehicle was delivered.

An electromechanical wheel suspension to the Autonomous corner module was developed by Mats Jonasson (2007). To evaluate the feasibility of electromechanical dampers in vehicles, a dimensioning method was also developed. By adapting the dimensioning method already during the development process of the vehicle, the compromise between comfort, handling and energy dissipation can be controlled.

A method to evaluate the potential of generating global vehicle forces was developed by Mats Jonasson (2009). This approach is specifically designed to handle all types of over-actuated vehicle systems. After this method was used, important differences were revealed in the ways in which differently equipped vehicle configurations could be actuated.

A quantification of the potential for emergency avoidance manoeuvres of differently actuated vehicles was studied by Mats Jonasson (2009). Friction brakes are most important in such critical manoeuvres. Nevertheless, wheel individual drive and steering on both axles do improve the potential to perform emergency avoidance manoeuvres safely. Such vehicles in real-life traffic would manage critical situations to a larger share with an increased entry speed, assuming a certain frequency distribution of vehicle speed.

3.2 Description of planned research

One important reason for using Autonomous corner module vehicles is their capability to assist the driver to experience the vehicle as desired. The performed research (2004-2009) demonstrated that such vehicles are able to use all available actuators to maintain stability. Since hydraulic friction brakes and combustion engines are hard to control to perfection, they are just used with acceptance of large deviations from the desired motion. Hence, the nature of the brake intervention is on-and-off rather than seamless. Here, the electrical machine becomes a viable option; the response time is low and the output torque is precisely controlled. The performed research (2004-2009) has shown that these advantages allow further improvement of the vehicle stability. The motion of the electrically actuated vehicle can be corrected even for minor deviations from the desired motion. Therefore, more attention must be paid on when actuators are used continuously with large efforts, otherwise the energy consumption may be considered unacceptable.

The performed research (2004-2009) has also focused on how the actuators should be optimally used when the vehicle motions can be correctly measured. Although the development of inertial sensors is well matured, they are not accurate enough. Traditionally, friction coefficients and side slip from the vehicle and tyres are examples of signals which are unmeasured or estimated with a large portion of uncertainty. Even in the case of the best over-actuated vehicle, an optimal control algorithm cannot exploit the vehicle's full potential if such variables are too uncertain.

Preventative safety, sportiness and convenience require different approaches in how vehicle actuators are controlled. The three categories cannot all be optimised at the same time, and in many cases, preventative safety and convenience involve contradictory actions. However, if the traffic situation can be measured, a trade-off between the three wishes is facilitated. One example is threat detection ahead of the vehicle, which can provide useful information to prioritise preventive safety even more.

Here, a description of four planned research directions is described:

1.
Possible risks and failure modes will be classified and analyzed using a top-down approach. Possible consequences on the dynamic behaviour of the vehicle caused by the identified faults will be analyzed, and solutions on to how to detect and compensate for the occurring faults will be developed. The solutions of recovery will be depending on which forces that do occur and which sensors and actuators that are available. The vehicle control strategy will also be depending on actual type of failure mode. Finally, verifying measurements of the level of fault-tolerance for various vehicle control algorithms on a scaled-down vehicle prototype is planned.

2.
Force and torque sensors are considered as too expensive and are typically rarely used. However, the introduction of electrical machines gives new opportunities, since rotor torques can be instantaneously measured via the machine current. As a research continuation, it is proposed to further investigate in what manner the non-ideal sensor data influences the over-actuated vehicle and how it should be adapted to the uncertainties.

3.
Along with the automotive usage of preview sensors, such as radar, global positioning-systems, cameras, etc, it is highly interesting to develop path optimisation for over-actuated vehicles further. Since force allocation controls the vehicle instantaneously, long-term effects are not considered. Particularly, indirect effects of actuation are difficult to find. This implies that the vehicle in the short term may perform actions that are irrelevant or inefficient, but in the long run, are favourable. One pedagogic example is brake actuation before entering a curve to avoid a potential accident. Therefore it is recommended to make further studies on dynamic path optimisation. Here it will be important that the vehicle's non-linear force constraints should be taken into account and also that a prediction of the available force constraints will be included in the formulation.

4.
As soon as the rear axle steering angle can be controlled along with the front axle, the vehicle side slip can be controlled independently from yaw rate. This extra freedom can be utilised to satisfy different preferences. Most likely, a small or no side slip is preferred for best comfort, while a large side slip can be needed if the vehicle is exposed to an evasive manoeuvre. Since comfort and safety do not for certain go hand in hand, this control problem concerns a trade-off between two preferences. Hence, it would be interesting to investigate further how a mixing of these two quantities should be performed, assuming knowledge of the current traffic scenario.

3.3 Publications

Publications before Licentiate degree

1. M. Jonasson, S. Zetterström and A. S. Trigell, 'Autonomous corner modules as an enabler for new vehicle chassis solutions', FISITA Transactions 2006, paper F2006V054T, 2006.

2. M. Jonasson and O. Wallmark, 'Stability of an electric vehicle with permanent-magnet in-wheel motors during electrical faults', The World Electric Vehicle Association Journal, Vol. 1, pp. 100–107, 2007.

3. M. Jonasson and O. Wallmark, 'Control of electric vehicles with autonomous corner modules: implementation aspects and fault handling', International Journal of Vehicle Systems Modelling and Testing, Vol. 3, No. 3, pp. 213–228, 2008.

4. M. Jonasson and J. Andreasson, 'Exploiting autonomous corner modules to resolve force constraints in the tyre contact patch', International Journal of Vehicle System Dynamics, Vol. 46, No. 7, pp. 553–573, 2008.

Licentiate thesis

5. M. Jonasson, 'Aspects of autonomous corner modules as an enabler for new vehicle chassis solutions', Licentiate thesis in vehicle engineering, TRITA-AVE2006:101, KTH Vehicle Dynamics, Stockholm, Sweden, 2007.

Publications between Licentiate and Doctor degree

6. O. Wallmark and M. Jonasson, 'Vehicles with autonomous corner modules - control and fault handling aspects', Proceedings of the Program Review Meeting - MIT Industry Consortium on Advanced Automotive Electrical/Electronic Components and Systems, Seattle, U.S.A., 2007.

7. M. Jonasson and F. Roos, 'Design and evaluation of an active electromechanical wheel suspension system', Journal of Mechatronics, Vol. 18, Issue 4, pp. 218–230, 2008.

8. J. Andreasson and M. Jonasson, 'Vehicle model for limit handling - implementation and validation', Proceedings of the 6th Modelica Conference, Bielefeld, Germany, 2008.

9. M. Jonasson, J. Andreasson, B. Jacobson and A. S. Trigell, 'Modelling and parameterisation of a vehicle for validity under limit handling', Proceedings of the 9th International Symposium on Advanced Vehicle Control, Vol. 1, pp. 202–207, Kobe, Japan, 2008.

10. J. Backmark, E. Karlsson, J. Fredriksson and M. Jonasson, 'Using future path information for improving stability of an overactuated vehicle', International Journal of Vehicle Systems Modelling and Testing, Vol. 4, No. 3, pp. 218–231, 2009.

11. M. Jonasson, J. Andreasson, B. Jacobson and A. S. Trigell, 'Investigation of the non-convex force constraints imposed by individual wheel torque allocation', submitted for publication, 2009.

12. J. Andreasson, M. Jonasson and H. Tummescheit, 'Modelica-simulation aktiver sicherheitsscenarios mit validierten fahrzeugmodellen in dymola', Proceedings of the ASIM-Workshop 2009, Dresden, Germany, 2009.

13. J. Edrén, M. Jonasson, A. Nilsson, A. Rehnberg, F. Svahn, J. Andreasson and A. S. Trigell, 'Modelica and dymola for vehicle dynamics applications

at KTH', 7th Modelica Conference 2009, Como, Italy, 2009.

14. M. Jonasson, J. Andreasson, A. S. Trigell and B. Jacobson, 'Utilisation of actuators to improve vehicle stability at the limit: from hydraulic brakes towards electric propulsion', submitted to Journal of Dynamic Systems, Measurement and Control, 2009.

15. M. Jonasson, J. Andreasson, B. Jacobson and A. S. Trigell, 'Global force potential of over-actuated electric vehicles', International Journal of Vehicle System Dynamics, Vol. 48, No. 9, pp. 983–998, 2010.

Doctoral thesis

16. M. Jonasson, 'Exploiting individual wheel actuators to enhance vehicle dynamics and safety in electric vehicles', Doctoral thesis in vehicle engineering, TRITA-AVE 2009:33, KTH Vehicle Dynamics, Stockholm, Sweden, 2009.

Publications after Doctor degree

17. D. Yang, T. J. Gordon, B. Jacobson, M. Jonasson and M Lidberg, 'Optimized brake-based control of path lateral deviation for mitigation of secondary collisions', submitted to Journal of Automobile Engineering, 2010.

18. J. Edrén, M. Jonasson, A. S. Trigell, J. Jerrelind, L. Drugge, 'The development of a down-scaled over-actuated vehicle equipped with autonomous corner module functionality', Fisita World Automotive Congress, Hungary, Budapest, 2010.

19. D. Yang, T. J. Gordon, M. Lidberg, M. Jonasson, B. Jacobson, 'Post-impact vehicle path control by optimization of individual wheel braking sequences'. Proceedings of 10th International Symposium on Advanced Vehicle Control, Loughborough, United Kingdom, 2010.

20. P. Sundström, M. Jonasson, J. Andreasson, A. S. Trigell and Bengt Jacobson. 'Path and control optimisation for over-actuated vehicles in two safety-critical maneuvers', Proceedings of 10th International Symposium on Advanced Vehicle Control, Loughborough, United Kingdom, 2010.

3.3.1 Reviewed papers published in journal: See paper 1-4, 7, 10 and 15 in Section 3.3

3.3.2 Additional publications

1. M. Jonasson and J. Andreasson, 'Volvo Cars: Active Safety', Contact Magazine, 27 Aug 2009.
2. S. Zetterström and M. Jonasson, 'Autonomous wheel angles', The Vehicle Component, No. 1, 2010.

3.3.3 Selected publications to this application: Paper 1-4, 7, 10, 15 and 20 in Section 3.3

3.4 Other scientific achievements

3.4.1 Active participation in national and international conferences over the past five years

1. Presentation of paper at Fisita World Automotive Congress, Yokohama, Japan, Oct 22-27, 2006.

2. Presentation of paper at Electric Vehicle Symposium 22, Yokohama, Japan, Oct. 23-28, 2006.
3. Invited as presenter to Research and Development of Hybrid Vehicles in Japan and Sweden, Gothenburg, Sweden, Nov. 29, 2006.
4. Invited presentation at Review Meeting - MIT Industry Consortium on Advanced Automotive Electrical/Electronic Components and Systems, Seattle, U.S.A., 2007.
5. Presentation of paper at the 9th International Symposium on Advanced Vehicle Control, Kobe, Japan, Oct. 6-9, 2008.
6. Invited as a presenter to Energisystem i vägfordon, Skövde, Sweden, Nov. 19-20, 2008.
7. Keynote speech at the 21st International Symposium on Dynamics of Vehicles on Roads and Tracks, Stockholm, Sweden, Aug 17-21, 2009.
8. Principal session chair and presenter of paper at the 10th International Symposium on Advanced Vehicle Control, Loughborough, United Kingdom, Aug. 22-26, 2010.

3.4.2 Own patents

1. 'Antenna Unit', No. US6396447, 27 Sep 1999.

   This patent concerns a new way of integrating vehicle antennas and receivers in a module positioned in the vehicle roof. The integration admits antennas to be connected to receivers without the need for any antenna amplifiers. Since the module replaces a distributed system installation in the vehicle, the manufacturing process is substantially simplified. The patent was set into production in Volvo XC90 in 2002.

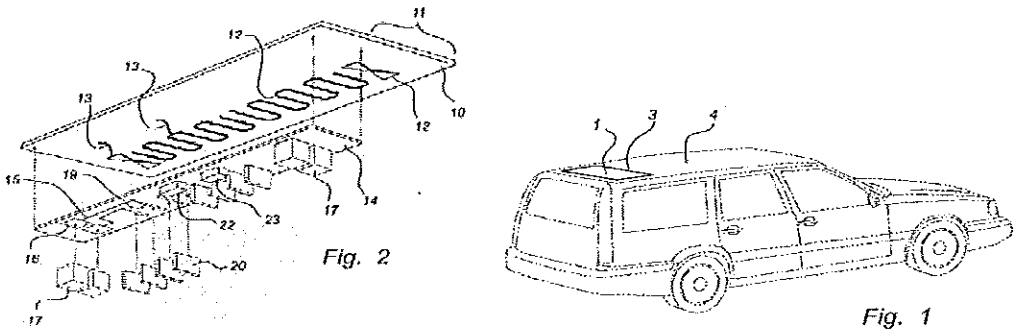


Fig 2: Illustrations from invention No. US6396447 [http://ip.com/patent/US6396447].

2. 'A steering system for a vehicle', No. EP1795433 and EP1795433, 9 Dec 2005.

   This invention relates to a control strategy where the rear wheels are steered in order to increase the lateral acceleration gradient during an evasive driving situation. The strategy requires rear axle steering and is based on cornering by putting energy into translational motion rather than yawing motion.

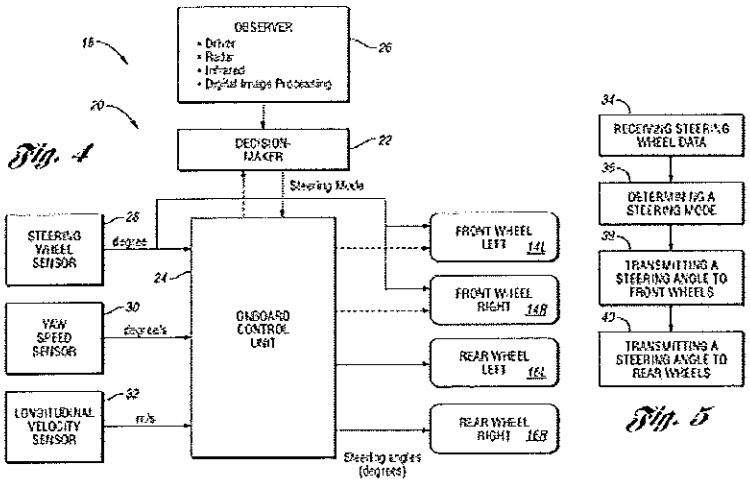


Fig 3: Illustration from invention No. EP1795433
[http://www.europatentbox.com/patent/EP1795433A1/abstract/655704.html].

3. 'A braking system and a method for braking a vehicle', No. EP1935737, 21 Dec 2006.

Today, electrical machines are mechanically disconnected by clutches to the wheels during ABS braking. This invention shows instead how electrical machines for propulsion can be used to enhance ABS braking. The electrical machines allow wheel torques to be quickly actuated in order to reach and stay at maximum longitudinal brake force.

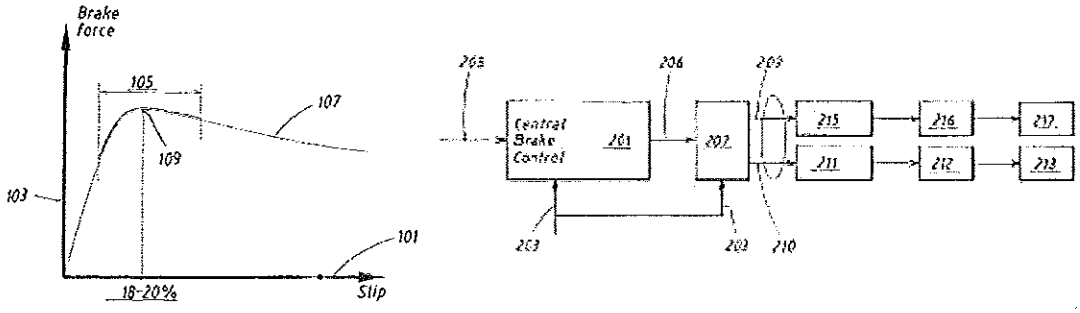


Fig 4: Illustration from invention No. EP1935737
[http://www.europatentbox.com/patent/EP1935737A1/abstract/407259.html].

4. 'Method and arrangement for controlling a suspension of a vehicle wheel', No. EP1935679 and EP1935679, 21 Dec 2006.

This invention relates to an arrangement to controlling a vehicle suspension. The arrangement is a combined unit of a damper and a spring. They have each an electrical machine connected to provide active damping as well as levelling. The unit is based on a rotational mechanism connected mechanically to an upper arm, which is fixed at the wheel hub.

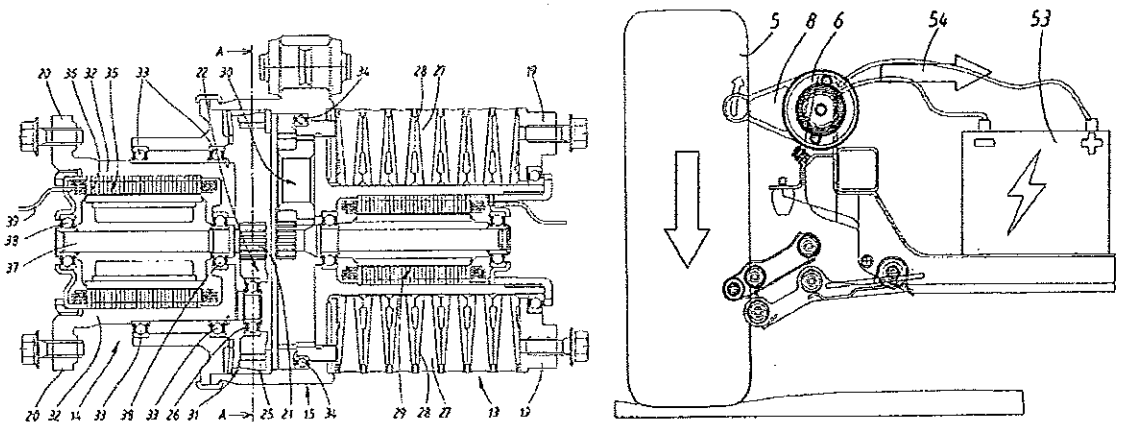


Fig 5: Illustration from invention EP1935679
[http://www.europatentbox.com/patent/EP1935679B1/abstract/794184.html]

3.4.3 Scientific qualifications of a non-academic nature

Mats Jonasson have been developing control algorithms to vehicle dynamic functions which possess a high academic interest at his employment at Volvo Car Corporation, but it cannot be published for confidentiality reasons at the moment.

4 PEDAGOGICAL ACHIEVEMENTS

4.1 Account of own pedagogical experience

Teaching at KTH during the period 2004 to 2009:

Approximately 10% of this time has been spent on teaching and contact with students. Mats Jonasson took part as a teacher in the following parts:

- The course "Vehicle engineering for a better environment" (4B1424), which belonged to Gröna bilen. Teaching included leading a laboratory exercise, leading one exercise in power train and leading one project assignment. The laboratory exercise gave insight in emissions of HC, CO and NOx as well as fuel consumption for a combustion engine. Measurements were done in a laboratory with a gasoline engine with a catalytic converter. Students wrote reports which were corrected firstly by exchanging the reports in between the students. Finally, Mats Jonasson judged and corrected the reports.
- The course "Fördjupningsarbete i fordonsteknik" (4B1430). Mats Jonasson was leading one exercise in power train and leading one project assignment. Students wrote reports which were corrected by Mats Jonasson.
- The course "Bachelor Degree project in vehicle engineering" (SA105X). Mats Jonasson was a supervisor for three different projects in the area of regenerative braking and energy consumption of electrical steering system.
- The course Vehicle dynamics (SD2225). Mats Jonasson hold a lecture about vehicle modelling and validation. This course gives knowledge in what vehicle models are typically used and how subsystems and complete vehicles are modelled and validated depending on the particular purposes. Particular attention is paid on how parameters to the models are determined.

Teaching after the Doctor degree:

- Mats Jonasson is a lecturer in Vehicle dynamics (SD2225) in vehicle modelling and validation (2 hours).
- Mats Jonasson is also from 2010 appointed as a teacher in an internal course at Volvo Cars. The course is arranged by Volvo Cars and is held a couple of times every year. Typically, the class has 25 students from different part of the company. The course belongs to a collection of courses mentioned to as "The chassis school". Teaching is performed in the area of vehicle control and includes the following parts:

  - Trends and functional architecture within vehicle control
  - Vehicle dynamics theory
  - Tyre characteristics
  - Actuators for motion control
  - Vehicle control algorithms

4.2 Personal pedagogical ideas about undergraduate and postgraduate teaching

Special attention is put on using many senses in learning. Although modern education is based mainly on verbal communication, a significant part of learning comes through visual stimuli. By using visualization in teaching learning become more concrete and the yield higher. Examples are animations and simulation of motion control of vehicles. Furthermore, when different senses are allowed to coexist the potential to further enhance learning is increased.

When teaching in for example Vehicle Dynamics course (SD2225), the learning process is enhanced by complementing the message by showing animations, video and photos (see Figure 6). Since the modelling is based on mathematical algorithms, just verbal communication only between teacher and students tends to not describe the message well. Visualization means that the learning process is strengthened by realism and concreteness. It is however important that the level of visualization is adapted to the experience of the students. Commonly, there are large variations in how much students have been working with vehicles before. For those students who have less experience, more visualizations are needed since they have more difficulties to create an own picture in their mind.

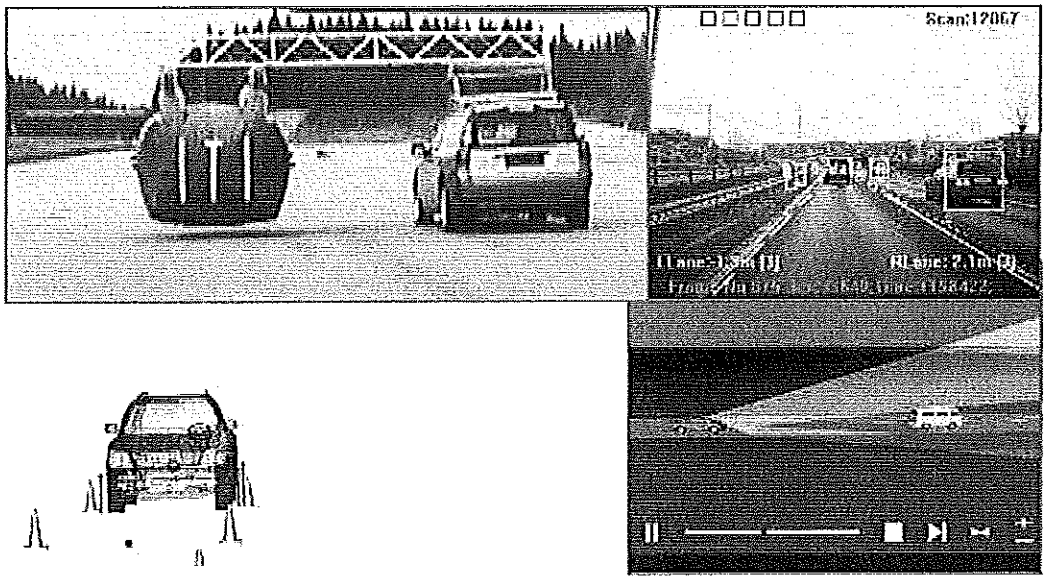


Fig. 1. Visualisering av trafikscenario med sensorvy.

Fig. 6: Examples of visualizations used in teaching to enhance learning

4.3 Own pedagogical education

Fundamental communication and teaching course 2p (LH200V),
English tuition 2p (Aac Global).

4.4 Academic supervising experience

4.4.1 Degree of project works

- Johan Backmark and Erik Karlsson, "Trajectory optimisation for overactuated vehicles", Master Thesis in Electrical Engineering, Chalmers University of Technology, 2008.
- Mattias Forslund and Cedric Nyberg, "Energiförbrukning i ACM system", Bachelor thesis in Vehicle Engineering, 2008.
- Kristian Ahlberg and Ted Holmberg, "Regenerativ bromsning – en analys av regenerativ bromsning med hjulmotorer", Bachelor thesis in Vehicle Engineering, 2009.
- Sofie Jarelius and Samuel Holt, "Hjulmotorer i hybridfordon – fördel vid regenerativ bromsning", Bachelor thesis in Vehicle Engineering, 2009.

4.4.2 Doctoral students at present being supervised

- Mats Jonasson is assistant supervisor as well as industrial representative for Derong Yang at Chalmers, Gothenburg. Her project "Enhanced post-impact stability control" was started 2009.
- Mats Jonasson is an industrial advisor to Johannes Edrén at KTH Vehicle Dynamics. His project "Generic vehicle motion modelling and control for enhanced driving dynamics and energy management" started in 2008 and lic. is planned to Jan. 2011.

- Mats Jonasson is an industrial advisor to Daniel Wanner at KTH Vehicle Dynamics. His project "Fault-tolerant over actuated HEVs" started in 2010 and Mats Jonasson was engaged in the definition of the project. The embryo to the projects was initiated by two papers written by Mats Jonasson and Oskar Wallmark.

5 OTHER ASSIGNMENTS

5.1 Own external contacts and activities

5.1.1 Own joint efforts with industry

Mats Jonasson has 15 years of industrial experience which includes design engineering work within telecom as well as automotive industry.

- Mats Jonasson was employed at Volvo cars at the powertrain department 1997-1998. A data collection system mentioned as flight recorder was developed to make it possible to log variables from motor and transmission electrical control units via CAN and k-line.
- Mats Jonasson belonged to the electrical department at Volvo Cars 1999-2004. Mats Jonasson worked in a team developing infotainment products. Design engineering work was made in the antenna and radio receiver area. Mats Jonasson developed a novel antenna system to Volvo XC90, which was patented. The invention was also brought into mass production. The design methods included electromagnetic simulations as well as measurements in antenna chambers. Mats Jonasson worked in close cooperation with the Swedish defence research agency (FOI) regarding electromagnetic simulation tools. Mats Jonasson was positioned partly at the FOI office in Linköping, Sweden.
- Mats Jonasson moved to the chassis department group at Volvo cars 2004. Mats belonged to the Volvo cars concept and strategy group, which role is to investigate future chassis concepts. Here, Mats Jonasson started his work as a PhD student in cooperation with KTH Vehicle Dynamics. During this period Mats Jonasson had three physical working office: KTH in Stockholm, Volvo Cars in Torslanda and also at Volvo Cars in Lindholmen. Gothenburg.
- Mats Jonasson moved to the department of active safety at Volvo cars 2007. Here he worked in close cooperation with active safety development engineers as well as Volvo cars hybrid vehicle centre.
- Mats Jonasson moved to the Vehicle dynamics control group at Volvo Cars 2009. The group is responsible for design of vehicle dynamics control functions. Available actuators are wheel brakes, engine and electric propulsion, differential clutches, front and rear steering and active suspension. Our internal customers are the attribute responsible for vehicle dynamics and active safety functions. The group work in close cooperation with Volvo cars electronics groups and our external system suppliers. Furthermore, the group have the responsibility of the functional architecture, i.e. the control structure. This has to be based on an understanding of the principles for all involved functions as well as limitations of sensors, actuators and electrical system. Examples of functions that the group are for is: stability control, vehicle state estimation,

rear axle steering control, differential clutch control, propulsion control, vehicle dynamics sensor fusion, arbitration of requests and coordination of actuators. Mats Jonasson is currently working with vehicle state estimation and stability control. In addition, Mats Jonasson is also working to determine the vehicle control structure for our future cars.

6 RESUME OF APPLICATION

Name:	Mats Jonasson
Year of birth:	690208
Gender:	Male
Present employment:	Volvo Cars
First academic degree, year and university:	MSc.E.E, 1997, Chalmers University of Technology, Gothenburg, Sweden
Doctoral degree, year and university:	PhD in Vehicle Engineering, 2010, KTH, Stockholm, Sweden
Number of articles with a referee system:	7
Number of doctoral students supervised:	1
Pedagogical merits:	Teaching has been performed by leading exercises in vehicle dynamics courses and as well as prepare/grade home assignments. Courses: "Vehicle engineering for a better environment" (4B1424), "Fördjupningsarbete i fordonsteknik" (4B1430), "Degree project in vehicle engineering" (SA105X) and Vehicle dynamics (SD2225). Currently, teaching is performed in the course Vehicle Dynamics (SD2225) and Volvo cars internal education in vehicle control.
Other information:	15 years of industrial experience. Mats Jonasson has had several different positions at Volvo Cars within the research and development organization. Currently Mats Jonasson is working in Volvo cars Vehicle dynamics control group with vehicle state estimation and stability control.

APPENDIX

A	Transcript PhD
B	Selected publications

Bilaga 7

KTH Farkost & Flyg

2013-05-23

Skolchef Professor Leif Kari
Skolan för Teknikvetenskap
KTH

KTH INDUSTRIAL FACULTY – Anhållan om affilierad forskare i Fordonsdynamik

Som en del av KTHs satsning "Industrial faculty" så blev Mats Jonasson, Volvo Car Corporation, född 690208-5510, gästforskare vid KTH Farkost & Flyg inom ämnet Fordonsdynamik med särskild inriktning mot innovativa fordonskoncept 2011-03-01. Omfattningen är 20% under perioden 2011-03-01 – 2014-02-28, dvs. under 3 år.

Med anledning av att KTH numera har begreppet "Affilierad forskare" anhåller vi härmed om att hans gästforskaranställning omvandlas till att han istället tillhör den affilierade fakulteten för den tid som återstår fram till 2014-02-28.

Hans ansökan från 2011 med samtliga bilagor bifogas.

Stockholm KTH som ovan

Dan Zenkert	Annika Stensson Trigell
Prefekt	Professor

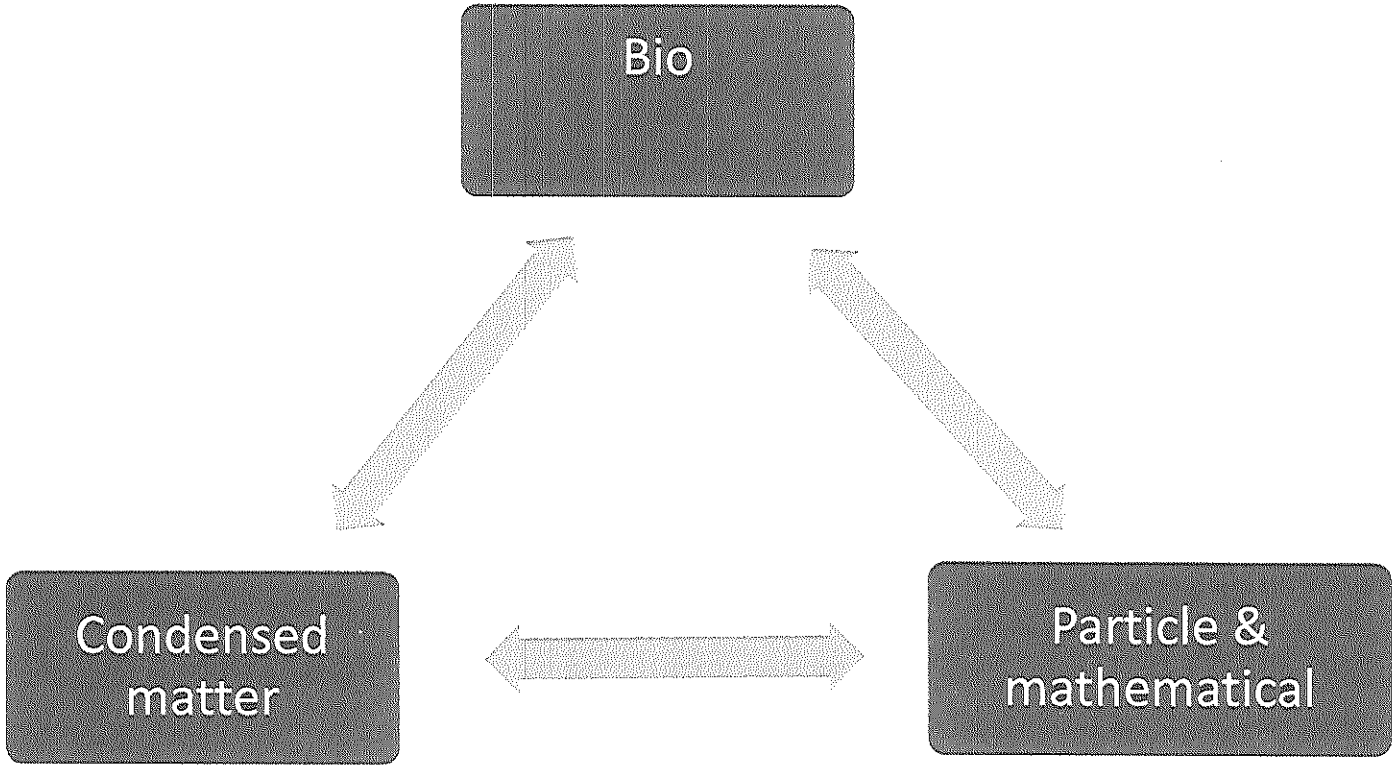
Bilagor:

1. Fulla ansökan från 2011 innehållande avsiktsförklaring från Mats Jonasson, brev från Volvo Car Corporation samt Curriculum Vitae och ansökan från Mats Jonasson

KTH Farkost & Flyg – SE–100 44, Tel: 08 790 79 63, Epost: pege@kth.se www.ave.kth.se

bilaga

Theoretical physics, KTH, 2013-05-30

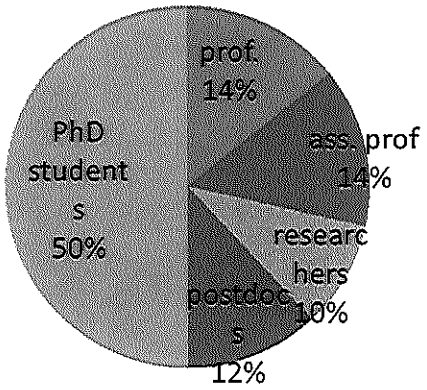


Olle Edholm

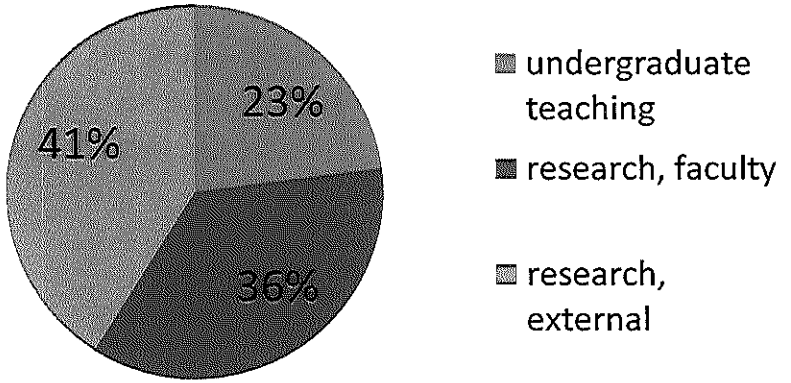
http://www.theophys.kth.se/

Theoretical physics, KTH

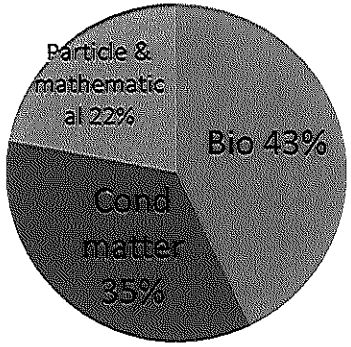
Staff

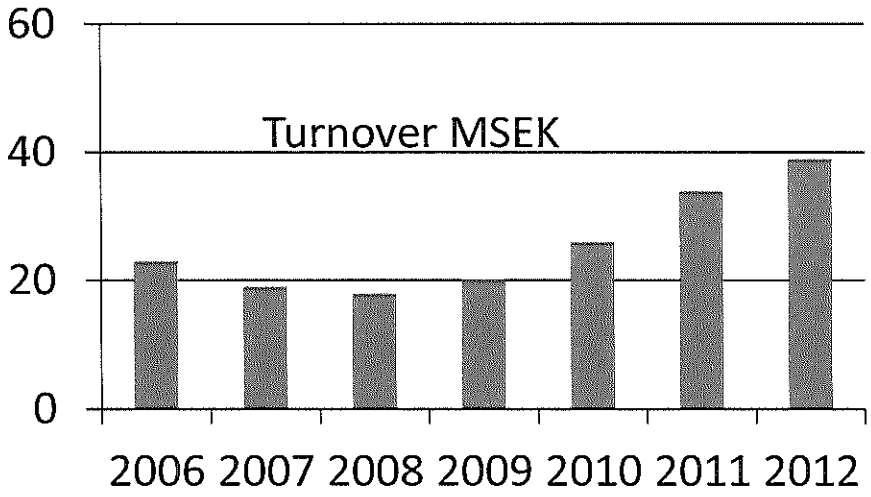


Economy



Research areas



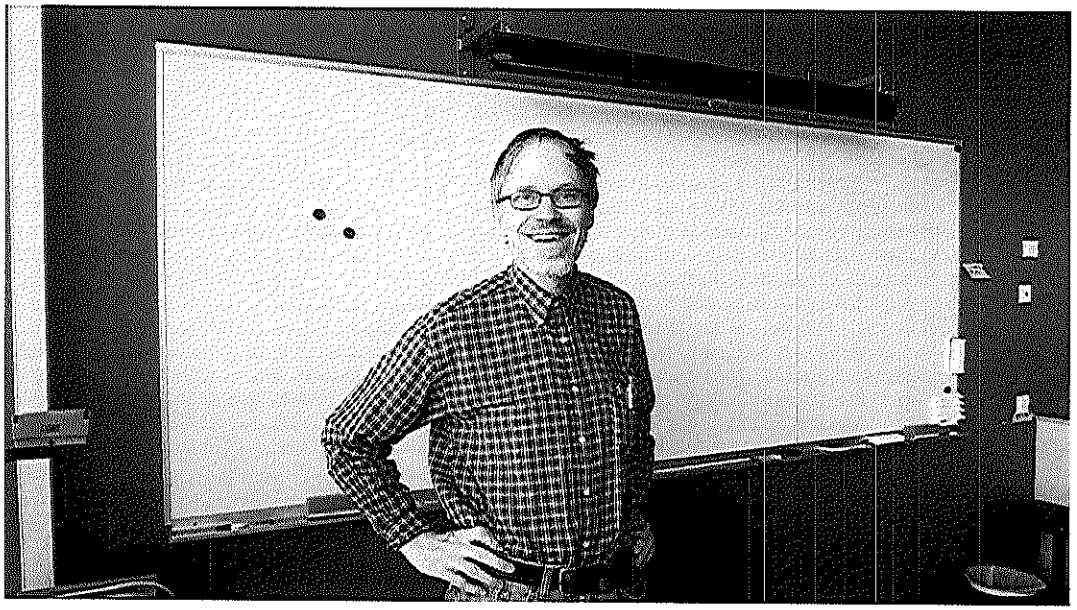


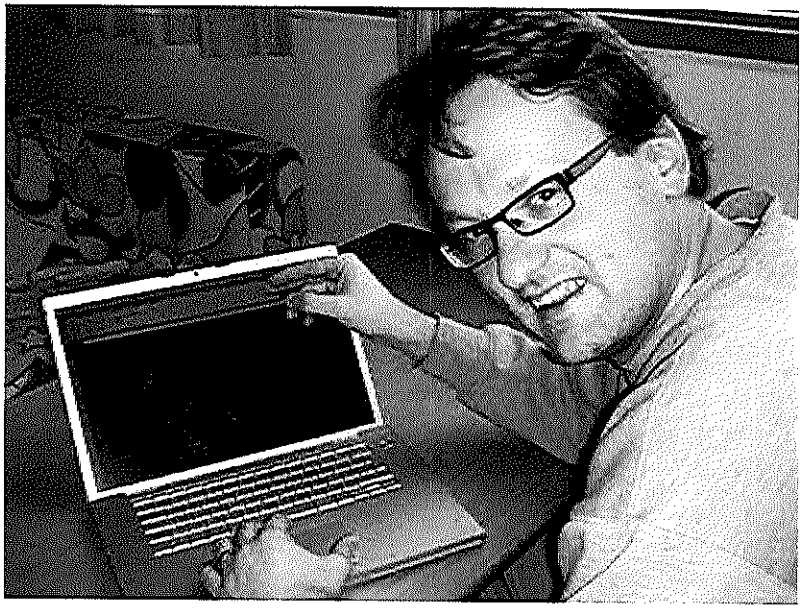
Staff theoretical physics, 2013

- 6 professors
- 6 associate prof.
- 2 assistant prof.
- 4 researchers
- 5 postdocs
- 21 PhD students
- 6 active emeriti

Biological physics	Prof Erik Lindahl Prof Olle Edholm (2016) Assoc prof Berk Hess 12 PhD students, 2 PD, 3 res
Condensed matter physics	Prof Anders Rosengren(2014) Prof Mats Wallin Assoc prof Anatoly Belonshko Assoc prof Patrik Henelius Assoc prof Jack Lidmar Assoc prof Egor Babaev 6 PhD students, 2 PD, 1 res
Particle and mathematical physics	Prof Tommy Ohlsson Prof Edwin Langmann Ass prof Teresia Månsson Ass prof Mattias Blennow 3 PhD students, 1 PD
Undergrad teaching	Assoc prof Bo Cartling (2014)

Biophysics

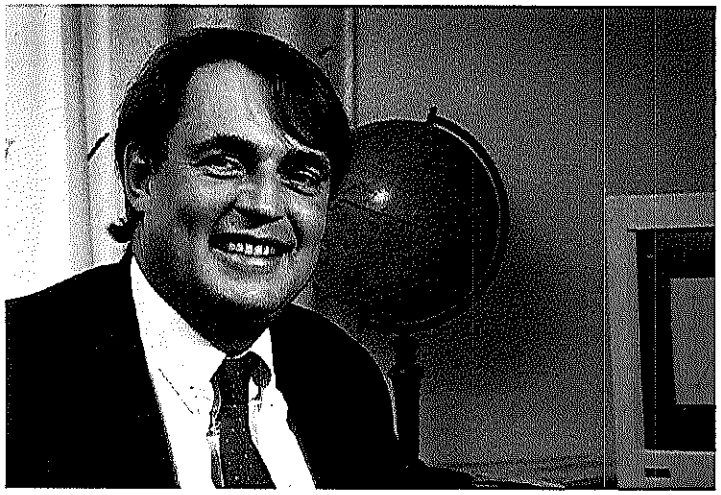


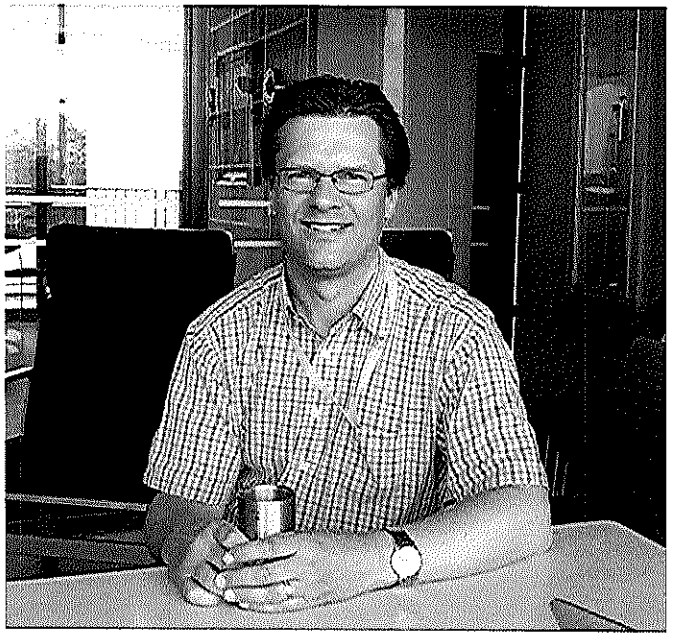


Prof. Olle Edholm
Theoretical biological physics
Head of department

Prof. Erik Lindahl
Computational biophysics

Condensed matter





Prof. Anders Rosengren
Condensed matter theory

Prof. Mats Wallin
Statistical physics

Theoretical particle and mathematical physics

Prof. Tommy Ohlsson
Particle physics
Deputy head of department

Prof. Edwin Langmann
Mathematical physics

bilaga 4

Theoretical physics as a part of KTH

• Turnover	1,0%
• Faculty funding	1,5%
• Professors	2,0%
• Assistent professors	2,5%
• VR-funding	3,2%
• Citations	5 %
• Citations, author normalized	6 %
• 4 ERC-grant out of ?	
• 4 Nature publications 2012 out of ?	

bilaga

Bibliometrisk ranking RAE2012

	jCF	Cf	Cr	cpy	ptot10	Sum rank
Med. Biotek.	1,42 (7)	2,12 (3)	1600 (7)	7,6 (1)	30% (1)	19
Teor. Fysik	1,52 (3)	1,80 (4)	2330 (4)	4,9 (3)	17% (8)	22
Proteomik	1,49 (5)	1,75 (5)	1297 (10)	4,8 (4)	24% (2)	26
Exp. Fysik	1,68 (2)	2,52 (1)	579 (22)	6,3 (3)	23% (3)	30
Fibrer & poly.	1,38 (8)	1,59 (8)	3078 (2)	3,1 (6)	18% (6)	30
Material Bio	1,50 (4)	1,73 (6)	639 (20)	4,1 (5)	21% (4)	39
Num. analys	1,45 (6)	2,32 (2)	532 (23)	2,4 (8)	20% (5)	44
Mikrosystem	1,71 (1)	1,44 (9)	478 (25)	1,7 (16)	11% (20)	51

	Citation statistics										
		Jcf	cr	cpy	cf	ptop10					
10.1	Medical Biotech	1,42	1600,10	7,60	2,12	30	2,34	1			2,0164
9.1	Chemistry	1,30	4665,30	3,00	1,30	12	2,10	2			1,69
3.2	Theoretical physics	1,52	2329,60	4,90	1,80	17	1,96	3			2,3104
3.1	Experimental physics	1,68	578,90	6,30	2,52	23	1,94	4			2,8224
9.3	Fiber & polymers	1,38	3077,70	3,10	1,59	18	1,90	5			1,9044
10.3	Proteomics	1,50	1296,60	4,80	1,75	24	1,81	6			2,25
10.4	Materials Biotech	1,50	639,30	4,10	1,73	21	1,52	7			2,25
9.5	Materials Science	1,23	2557,00	2,00	1,10	9	1,39	8			1,5129
1.4	Numerical Analysis	1,45	531,60	2,40	2,32	20	1,39	8			2,1025
4.1	Applied Physics	1,35	1730,00	2,00	1,16	11	1,26	10			1,8225
4.4	Optics & Photonics	1,35	1220,70	1,90	1,35	15	1,23	11			1,8225
4.3	Materials Physics	1,41	922,60	2,30	1,26	16	1,21	12			1,9881
9.4	Theoretical Chemistry	1,28	1523,90	2,40	1,12	10	1,21	12			1,6384
7.2	Solid mechanics	1,14	1159,40	2,20	1,30	14	1,18	14			1,2996
2.1	Information processing	1,36	1617,20	0,80	1,32	13	1,17	15			1,8496
5.2	Electrical power engineering	1,14	1537,50	1,30	1,16	12	1,12	16			1,2996
7.3	Fluid mechanics	1,20	1022,20	1,30	1,23	13	1,04	17			1,44
9.2	Chemical engineering	1,27	1040,20	2,00	1,06	10	1,04	17			1,6129
6.1	Microsystems	1,71	477,70	1,70	1,44	11	1,03	19			2,9241
11.2	Land and water resources	1,12	766,10	2,00	1,19	11	0,99	20			1,2544
13.2	Applied Computer Science	1,32	890,30	1,30	1,10	11	0,97	21			1,7424
10.2	Industrial Biotechnology	1,07	323,60	3,20	1,17	8	0,94	22			1,1449
5.1	Nuclear power	1,01	423,80	1,60	1,26	15	0,93	23			1,0201
13.3	Mediated Communications	1,06	144,3	0,9	1,67	18	0,93	23			1,1236
5.4	Energy transformation	1,17	427,30	1,60	1,11	14	0,92	25			1,3689
5.3	Fusion	1,06	538,40	1,70	1,18	12	0,91	26			1,1236
12.3	Philosophy	1,07	487,60	1,70	1,14	9	0,84	27			1,1449
1.1	Mathematics	1,24	703,80	0,80	1,12	10	0,84	27			1,5376
12.4	Urban Planning	0,79	716,00	1,70	0,99	8	0,80	29			0,6241
1.3	Optimization	1,26	242,70	1,10	1,14	12	0,80	29			1,5876
8.4	Industrial Economics	1,07	200,30	1,30	1,24	10	0,76	31			1,1449
11.3	Transport Science	1,09	324,10	0,90	1,08	10	0,73	32			1,1881
8.3	Health	0,99	196,30	1,80	1,07	7	0,72	33			0,9801
6.2	Intergrated devices	1,02	777,30	1,10	0,91	5	0,72	33			1,0404
7.1	Veichle Engineering	1,09	454,80	0,80	0,94	9	0,71	35			1,1881
1.2	Mathematical Statistics	1,34	115,20	1,20	0,83	7	0,65	36			1,7956
8.1	Industrial product development	0,99	251,60	0,80	0,95	8	0,62	37			0,9801
4.2	Medical Technology	0,83	475,10	1,30	0,59	3	0,55	38			0,6889
12.2	Real Estate	1,04	57,00	1,20	0,96	4	0,55	38			1,0816
2.2	Communication	1,05	278,80	0,40	0,96	5	0,54	40			1,1025
12.5	Industrial Ecology	0,98	76,10	1,30	0,75	3	0,51	41			0,9604
7.4	Mechanics-Biomechanics	0,95	165,30	1,30	0,72	2	0,50	42			0,9025
11.1	Civil and Arch. Eng.	0,98	116,10	0,60	0,69	6	0,49	43			0,9604
13.1	Theoretical Computer Science	1,21	166,30	0,60	0,58	2	0,45	44			1,4641
6.3	Embedded electronics	0,74	171,60	0,20	0,52	4	0,35	45			0,5476
8.2	Production Engineering	0,80	48,20	0,40	0,63	0	0,30	46			0,64
12.1	Architecture	0,53	3,50	0,10	0,14	0	0,13	47			0,2809
	Average	1,17	831,26	1,89	1,18	10,89	1,00				1,43
	Standardawikelse	0,24	890,55	1,50	0,44	6,32	0,49				
	std/medel	0,20	1,07	0,79	0,38	0,58	0,49				

Faculty renewal

- Alexander Balatsky professor at NORDITA 2012
- A tenure track assistant professor in astroparticle physics, Mattias Blennow, started in August 2012
- Egor Babev, associate professor in condensed matter theory from May 2013
- Retirements : 1 professor and 1 associate professor 2014. 1 professor 2016.
- Further recruitments, 1-2 assistent professors in biological physics and possibly condensed matter.
- Need to consolidate most groups with more graduate students and post docs.

Future strategy

- Gender balance
- Strengthen role in undergraduate teaching
- SciLifeLab
- Strengthen condensed matter in cooperation with NORDITA (Sasha Balatsky)
- Be an important part and strengthen SeRC (Swedish e-science Research Center)
- ESS (European Spallation Source in Lund). Develop theory and simulations for neutron scattering in biology and materials science.
- Strengthen applied material science (Belonoshko)
- Strengthen cooperation between theoretical particle physics (Ohlsson) and other particle physics research at AlbaNova
- Strengthen all three environments and provide critical mass
- Encourage cooperation between the environments

Future recruiting

- The main strategy is to strengthen present environments with more graduate students and post docs.
- Not replace retiring faculty fully.
- No decisions yet. Need good candidates that can attract (applied) funding and add synergies to the environments.

Plans

- Tenure track assistant professor in biophysics/soft condensed matter/polymers/neutron scattering based at AlbaNova.
- Possibly something in strongly correlated electron systems in cooperation with Nordita.