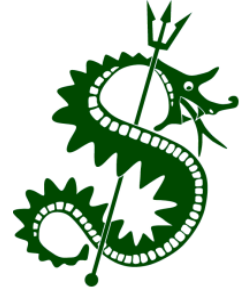




Marina system
Centre for Naval Architecture

KTH MARINA SYSTEM & SKEPPSÄLLSKAPET ARRANGERAR:



MARINE TECHNOLOGY DAYS

THE 15TH STUDENT'S CONFERENCE & MARITIME EXPO 1-2 JUNE 2023

Program & Abstracts!

[Marinteknikdagar på KTH | KTH](#)

PROGRAM TORSDAG 1/6 MARINTEKNIKDAGAR PÅ KTH 2023

DAG 1 SESSION 1-4


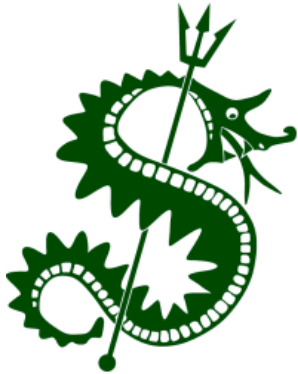
OSKARSBACKE 14 (ELLER 2 OM MAN VILL UNDVIKA TRAPPOR) SAL E3, [KTH | E3](#)

9.15	Studentkonferens – Vad och varför! <i>Karl Garne, KTH Marina system</i>			SESSION 3: WAVES & SEAKEEPING <i>Ordförande: Erik Ovegård, FOI</i>	
9.25-10.30	SESSION 1: MASTERING THE WATER <i>Ordförande: Karl Garne, KTH</i>		13.15-14.30	KEx åk 3	Mobil vågmätning 2.0 <i>Elliot Collin</i>
	KEx åk3	Vågriktningsspektrum –bestämt från en mätpunkt! <i>Rebecca Martinsson</i>		MExååk5	Operability of the Visby class corvette <i>Emil Nilsson</i>
	PhD project	Designed to blow up <i>Per Blomqvist</i>		PhD project	Design for seakeeping <i>Marion Zu</i>
	MEx åk5	Evacuation <i>Lauris Darżnieks</i>		MEx åk5	Ocean Economy – Implementing damages to the ocean into the DICE model <i>Malte Gleim</i>
ca 10.30-11.00	KAFFEPAUS		14.30-15.00	KAFFEPAUS	
11.00-12.15	SESSION 2: EXPLORING THE WATERBORNE <i>Ordförande: Elin Lindberg, Saltech</i>		15.00-16.15	SESSION 4: MANOUVRABILITY <i>Ordförande: Magnus Forsberg, SSPA(RISE)</i>	
	PhD project	Coping with ice <i>Meng Zhang</i>		MExååk5	Manövrera ett rörligt mål <i>Niklas Carlbaum</i>
	MEx åk5	UITP Award finalist: Waterborne Urban Mobility <i>Harsha Cheemakurthy</i>		MEx åk 5	Emission-mitigating manouvering <i>Ali Ziaei Dehbarez</i>
	MSc-course	Balancing the water space <i>The creative students</i>		MEx åk 5	Maneuver in Sail-GP! (Zoom US) <i>Sabrina Smith</i>
ca 12.15-13.15	LUNCH		Från ca 16.30	MÄSSA PÅ HYLLAN, NYMBLE	

PROGRAM FREDAG 2/6 MARINTEKNIKDAGAR PÅ KTH 2023

DAG 2 SESSION 5-6

TEKNIKRINGEN 33 SAL H1, [KTH](#) | [H1](#)

<p>9.15-10.30</p>	<p>SESSION 5: UNDERWATER NOISE AND DANCE <i>Ordförande: Magnus Burman, KTH</i></p> <p><i>KEx åk5</i> Seglar man förutan ljud? Och vem bryr sig? <i>Jesper Adolfsen</i></p> <p><i>PhD-project</i> Underwater docking <i>Aldo Teran Espinoza</i></p> <p><i>Research</i> Skansen skakar! <i>Peter Sigray</i></p> <p><i>KEx åk3</i> Analys och tolkning av segelbåtsbuller <i>Alexander Åström</i></p>		 <p>Marina system Centre for Naval Architecture</p>
<p>ca 10.30-11.00</p>	<p>KAFFEPAUS</p>		
<p>11.00-12.30</p>	<p>SESSION 6: STABILITY & SUSTAINABILITY <i>Ordförande: Sanja Dedovic, FMV</i></p> <p><i>KEx åk3</i> Vågor kullkastar det stabila fartyget <i>Axel Macquart-Moulin</i></p> <p><i>MSc-course</i> Tests on M/S Västan <i>The chosen one</i></p> <p><i>KEx åk3</i> The Finnbirch capsize- a Case of Pure Loss of Stability r <i>Simon Colleen Mårtensson</i></p> <p><i>Mex-åk5</i> Sails -as in future <i>Antonia Hillenbrand</i></p> <p><i>Avslutning</i> Studentkonfens för Marinteknik <i>Karl Garme</i></p>		
<p>ca 12.30-13.30</p>	<p>LUNCH</p>	<p>Från ca 18.00</p>	<p>MIDDAG PÅ BRAZILIA, M-HUSET</p>

SESSION 1: MASTERING THE WATER

Ordförande: Karl Garme KTH Marina system

Vågriktningsspektrum –bestämt från en mätpunkt!

Rebecca Martinsson

En metod för att mäta havsvågors propageringsriktning är att använda en vågboj. Vågbojen flyter på vattenytan och är utrustad med datainsamlade sensorer, med hjälp av vilka vågornas propageringsriktning kan bestämmas. Men hur bestäms propageringsriktningen i praktiken? I den här presentationen beskrivs hur ett riktningsspektrum, innehållande havsvågors energifördelning i olika riktningar, kan tas fram utifrån mätdata insamlad med en vågboj.

Designed to blow up

Per Blomqvist

When new material is bought for the military it needs to be thoroughly tested to make sure that it fulfills every requirement specified in the tactical and technical specifications. In the marine this sometimes means that the capability to find, track and fight enemy attack crafts needs to be tested, and for this something that can simulate a target is needed.

We have worked with FMV to find out what capabilities a craft such this must have, and based on the capabilities, technical requirements were formulated. With the technical requirements as governing parameters several design options with pros and cons will be presented.

Evacuation

Lauris Darznieks

This study validated ship evacuation simulations through an onboard evacuation experiment conducted on the research vessel Svea. The experimental and simulated scenarios were compared in terms of evacuation routes, distances, times, and behavior patterns. A detailed 3D model of the ship was created, and various inputs replicated the ship's environment. Both the experiment and simulation focused on individual evacuation. The findings provided valuable insights into the accuracy and reliability of ship evacuation simulations, identified weaknesses in simulation software, and proposed ideas for improving the safety of future ships.

SESSION 2: EXPLORING THE WATERBORNE

Ordförande: Elin Lindbergh, Saltech

Coping with ice

Meng Zhang

When designing a ship, it is imperative to address the challenges posed by ice in order to ensure the safety and efficiency of maritime operations. Ice can significantly impact a ship's stability, navigation, and structural integrity. Countries such as Sweden, with long winter seasons where inland waterways can freeze for up to five months, face unique ice-related challenges. This presentation will give an overview of why coping with ice is crucial, how it can be addressed, and what measures can be taken to mitigate ice-related risks in the context of ship design.

UITP Award finalist: Waterborne Urban Mobility

Harsba Cheemakurthy

The presentation explores the concept of a modular ferry as a solution to contemporary challenges in waterborne public transportation. By implementing standardization and modularization, the proposed solution aims to address cost and construction time issues while preserving the tailoring potential of ferries. A user-friendly Design performance tool converts design parameters into measurable metrics, optimizing economic, social, and environmental performance. This approach enables affordable and tailored ferries, maximizing passenger appeal and minimizing emissions. The concept originated from a recent PhD project and has been recognized as a finalist for the UITP awards 2023, with winners to be announced on June 4th.

Balancing the water space

The creative students

They haveb't told me anything! Thus surprise!

SESSION 3: WAVES & SEAKEEPING

Ordförande: Erik Öregård, FOI

Mobil vågmätning 2.0

Elliot Collin

Hur karaktäriserar man sjöstillstånd på ett systematiskt sätt? Ett alternativ är att använda vågbojor utrustade med accelerometrar, gyroskop och magnetometrar. Dessa sensorer finns emellertid i de flesta moderna mobiltelefoner, och i det här kandidatexamensarbetet utvecklades ett vågbojssystem för att möjliggöra datainsamling med hjälp av en mobiltelefon. Dessutom utfördes fälttester utanför Sandhamn i Stockholms ytterskärgård för att demonstrera systemets förmåga att mäta havsvågors periodtid, våghöjd och propageringsriktning.

Operability of the Visby class corvette

Emil Nilsson

The project is meant to accomplish two main tasks. First it is to investigate what a reasonable limit on ship motions on the Visby class corvettes should be to make sure that the crew remains able to perform their duties and that all systems are working. The second task is to investigate the operability at each main mission with regard to these limits, as well as the circumstances of the occasions where the ship fails with any of the criteria. This presentation focuses on the chosen seakeeping criteria and the process that led to their selection.

Design for seakeeping

Marion Zu

Seakeeping receives no priority in vessel design due to complexities in analyses and evaluation. A seakeeping analysis involves predicting a vessel's motion responses in waves using numerical methods or model-scale experiments, depending on available time, cost and accuracy, irrespective of vessel type. Seakeeping evaluation requires criteria to determine whether the vessel's seakeeping makes it fit for purpose. However, these criteria must reflect the vessel type because different vessels serve different purposes. In addition, evaluation criteria assure vessel capabilities and a conducive work environment onboard. Based on this premise, a framework for seakeeping evaluation is proposed for implementation in design for seakeeping.

Ocean Economy – Implementing damages to the ocean into the DICE model

Malte Gleim

While the importance of the oceans for climate change and the society is generally acknowledged in science and literature, it is often not reflected in policy. Integrated Assessment Models (IAMs) which are used to advise policy on carbon prices often systematically omit process and damages related to the ocean such as ocean acidification, loss of biodiversity and changes in ocean currents. The aim of this study is to give a more detailed perspective on ocean related processes and their role and importance for the economy under climate change and to test assumptions made in the development of IAMs - and more precisely Dynamic Integrated Climate-Economy model also referred to as the DICE model. The DICE model is a neoclassical integrated assessment model developed by 2018 Nobel Laureate William Nordhaus that integrates economics, the carbon cycle as well as climate science and estimated costs. This thesis is the first of its kind attempt in reviewing the most recent biophysical evidence on climate change impacts with a focus on marine systems and incorporating these damages to market and non-market sectors into the DICE model. The impacts from climate change are implemented into the DICE model through economic valuation of the damages and an update of the damage function. The analysis is based on the damage function used in the original DICE2016R2 model as well as the suggested update presented by Hänsel et al. (2020)

SESSION 4: MANOVRABILITY

Ordförande: Magnus Forsberg, SSPA(RISE)

Manövrera ett rörligt mål

Niklas Carlbaum

Emission-mitigating maneuvering

Ali Ziaei Dehbarez

In this thesis, the importance of considering the ship's maneuvering motion during propeller selection and its effects on emission reduction is going to be investigated. The maritime industry is under increasing pressure to minimize its environmental impact and comply with emission reduction regulations. By introducing a new approach for the propeller selection taking into consideration of effects of wind and waves on the ship's motion and maneuvering as opposed to the current approach which is at steady speed in calm water, a propeller operating point can be found. This thesis aims to develop a simulation code for ship maneuvering motion considering the environmental forces and propeller optimization and then studies the effect of optimization on emission reduction.

Maneuver in Sail-GP! (Zoom US)

Sabrina Smith

Sail GP is committed to minimizing its environmental footprint and acknowledges the prospects of sustainable enhancements in the construction of F50 foiling catamarans. To address concerns regarding the adoption of sustainable methodologies, this study aims to assess the existing construction process and explore possibilities for redesigning a composite component using environmentally friendly materials. By conducting this analysis, we will demonstrate that through diligent efforts and alternative specifications, we can achieve reduced environmental impacts while ensuring structural integrity. The outcomes of this research will highlight the potential for implementing sustainable practices in the sailing industry.

SESSION 5: UNDERWATER NOISE AND DANCE

Ordförande: nm

Seglar man förutan ljud? Och vem bryr sig?

Jesper Adolfsson

Denna presentation syftar till att belysa den påverkan fritidsbåtars bullerutsläpp har på fiskbeståndet i Stockholms skärgård, men också havet i stort. Vi tar en titt på det bissnande segelbåtsbeståndet i skärgården, för att sedan utforska fiskens hörselgenskaper. Därefter studerar vi lägre frekventa ljuds påverkan på östersjöfisken för att sedan dra paralleller till fritidsbåtarna. Hur en motorgående segelbåt faktiskt låter får ni reda på när Alexander presenterar senare.

Underwater docking

Aldo Teran Espinoza

I'm talking about my work done towards solving the problem of docking for underwater proximity operations (prox-ops) with arbitrary targets. Underwater prox-ops are typically described by a set of phases that a 'chaser' agent (almost always an autonomous underwater vehicle) has to complete in order to reach its 'target'. Underwater prox-ops scenarios vary depending on the type of target involved (for example, recovery from a mothership, docking with a static docking station, or actuating underwater intervention panels) which means that the chaser agent must adapt to the different conditions in order to find and home into its target. My work mainly involves the task of processing sensor information in order to estimate the position, orientation, and dynamics of both the chaser and the target in the most efficient way.

Skansen skakar!

Peter Sigray

Marina djur använder i huvudsak ljud för att skapa sig en omvärldsbild. Fiskars hörselorganet kan liknas vid en treaxlig accelerometer som uppmäter partikelrörelse. För vissa fiskarter är simblåsan kopplad till hörselorganet och som ett resultat blir de känsliga för tryckvariationer. Oavsett anatomi är påverkar för mycket ljud djurens överlevnad. Höga ljudnivåer kan leda till stress och beteendeförändringar.

Under 2023 sprängs det under Skansen. Baltic Sea Science Center är oroliga att bullret påverkar fiskarna i Skansens akvarier negativt. Marina System påtog sig uppdraget att mäta upp ljudtrycket i en av akvarierna. Resultaten från mätningarna kommer att presenteras under marinteknikdagarna.

Analys och tolkning av segelbåtsbuller

Alexander Åström

Under våren har mätningar gjorts på segelbåtsbuller från en Maxi 77 för att undersöka dess påverkan på marint liv. Segelbåtens ljudgenerering analyserades i MATLAB med signalanalys och dess akustiska profil bestämdes för att besvara tre frågor. Hur mycket låter en segelbåt och i vilka frekvensområden? Slutligen, överlappar denna profil med marint livs hörtrösklar?

SESSION 6: STABILITY & SUSTAINABILITY

Ordförande: Sanja Dedovic, FMV

Vågor kullkastar det stabila fartyget

Axel Macquart-Moulin

?

Tests on M/S Västan

The chosen one

A thorough display of the lab at sea guiding the beauty m/s Västan through zig-zag and circle tests as well as a roll decay experience!

The Finnbirch capsize- a Case of Pure Loss of Stability r

Simon Colleen Mårtensson

A presentation discussing the vessel Finnbirch, it's sinking on the baltic sea and the causes behind it. Furthermore the pure loss of stability scenario will be explained and how the dangers of it can be avoided.

Sails -as in future

Antonia Hillenbrand

Sailing vessels were over the longest time in history the standard means of propelling cargo ships around the world. In the last two centuries they were gradually replaced in that role. But recognizing the importance of sustainability and the environmental impact of shipping, we are looking back – to innovate sails and make them fit for the grown complexity of maritime transportation.

The reunion of modern vessels and sailing comes with fundamental modifications to the sailing behaviour – and opens up a multidisciplinary research field around wind propulsion. This presentation will give insights in past and future sailing technology research in collaboration between Oceanbird and KTH.