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KTH is responsible for one third of Sweden’s capacity for technical research and is the country’s largest organiser of technical/engineering education at university level. KTH education and research covers a broad spectrum – from natural sciences to all branches of engineering plus architecture, industrial economics, urban planning, work science, philosophy and the history of technology. In addition to the research at KTH schools there are a large number of national and local competence centres located at KTH, as well as research programmes financed by various research foundations.

KTH offers degree courses in architecture, master of science in engineering, bachelor of science in engineering, bachelor’s degree, master’s degrees (one or two years), licentiate and doctoral degrees. There is also a technical preparatory course as well as further education. There are a total of 14,000 full year students at first (undergraduate) level and second (postgraduate) level, over 1,700 active research students and almost 4,300 employees.

KTH was founded in 1827 and its current site is at Norra Djurgården in central Stockholm. Other operations are located at AlbaNova close to Roslagstull where KTH, together with Stockholm University, arranges education and research within biotechnology and physics. In addition KTH runs activities on other campuses in the Greater Stockholm area. In Kista in the northern part of Stockholm houses the School of Information and Communication Technology (ICT) while in southern Stockholm the School of Architecture and the Built Environment (ABE) is placed in Haninge. The School of Technology and Health (STE) is located in Flemingsberg where it operates in collaboration with Karolinska Institutet (KI). The School of Industrial Engineering and Management (ITM) operates certain activities in Södertälje.

KTH carries out extensive international research and educational exchange with universities and university colleges primarily in Europe, USA and Australia as well as countries in Asia. KTH participates actively in the various EU research programmes. Cooperation with Swedish and international development cooperation agencies is also underway.

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### KTH IN FIGURES 2010

**EDUCATION**

- Architecture and 16 engineering programmes
- Double degree programmes in engineering and teaching
- 9 B.Sc. engineering courses
- 65 Master programmes in English
- 3 Master programmes in Swedish
- 3 Bachelor degree programmes
- Two-year university diplomas, further education, technical preparatory programme
- 14,073 full time students, of which 30 percent are women
- 11,433 annual performance equivalents
- 1,683 active research students (at least 50 percent activity), of which 29 percent are women

**Admissions**

- 3,382 new students on the Master of Science in Engineering, Master of Architecture and Bachelor of Science in Engineering programmes plus Bachelor degree programmes and Technical Preparatory Programme, of which 27 percent are women
- 1,490 new students on Master programmes, of which 26 percent were women
- 407 newly students to research level programmes, of which 31 percent were women

**Degrees**

- 1,173 Master of Architecture and Master of Science in Engineering degrees, of which 32 percent to women
- 258 Bachelor of Science in Engineering degrees, of which 32 percent to women
- 898 Master degrees, of which 32 percent to women
- 201 Doctoral degrees, of which 33 percent to women
- 115 Licentiate degrees, of which 21 percent to women

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**RESEARCH**

Larger-scale national research programmes

- 8 Vinnexcellence Centres (Vinnova)
- 3 Linné Centres (the Swedish Research Council)
- 2 SSF Centres – the Swedish Foundation for Strategic Research
- 2 Swedish Energy Agency Centres
- One Mistra Centre – Foundation for Strategic Environmental research

**FINANCES**

- SEK 3,674 million in total turnover (of which SEK 194 million transfers)

**Government grants**

- SEK 1,114 million undergraduate education
- SEK 878 million research/doctoral studies

**External financing (excluding transfers)**

- SEK 242 million - the Swedish Research Council
- SEK 182 - million EU
- SEK 167 - million Vinnova
- SEK 95 - million the Wallenberg Foundations
- SEK 350 - million other government agencies
- SEK 451 - million other external financing including private funds

**EMPLOYEES**

- 4,276 employees, the equivalent of 3,157 full time positions, of which:
  - 1,088 women
  - 2,069 men
  - 287 professors of which 29 women (including 23 visiting professors)
  - 38 adjunct professors (individuals)
  - 207 associate professors of which 39 women (including 3 assistant professors)

**PREMISES**

- 231,000 m²
KTH MANAGEMENT

KTH organisation are organised into schools. These schools consist of the relevant departments, centres and educational programmes. Schools report directly to the President and are headed by a Dean and a Vice-Dean. Schools are directed by a Board and led by a Management Group who are responsible for operations. There is also a faculty assembly at each school.

The President leads operations reporting to the University Board. One Vice President acts as the President’s Deputy. The President’s Group deals with strategic educational, research and quality issues and consists of the President, Deputy President, Dean of Faculty, Vice-Dean of Faculty, two vice-presidents for research, the University Director and a student representative. The KTH Management Group deals with matters concerning all KTH schools and consists of the President, Deputy President, Dean of Faculty, Vice-Dean of Faculty, Vice-Presidents, University Director, all deans of schools and two student representatives.

The Faculty Board bears the academic responsibility for KTH’s education and research. Quality activities – follow-up, evaluation and recommendations – have a prominent place in their operations.

A central Faculty Forum acts as an arena for information, discussion and introduction of overall policy issues, as well as providing advice on research and educational matters.

The University Board supervises all KTH operations and is responsible for ensuring that tasks are properly fulfilled. The Board consists of 15 members – eight external representatives, the President, three teachers and three student representatives.

Due to changes that have occurred in the Higher Education Act and the Higher Education Ordinance as concerns greater autonomy for universities and university colleges, in 2011 KTH will undertake certain changes in its management structure.

KTH SCHOOLS WITH OPERATING AREAS

- School of Architecture and the Built Environment (ABE)
  - Architecture
  - Civil and architectural engineering
  - Land and water resources engineering
  - Philosophy and history of technology
  - Real estate and construction management
  - Transport sciences
  - Urban planning and environment

- School of Biotechnology (BIO)
  - Industrial & environmental biotechnology
  - Material biotechnology
  - Medical biotechnology
  - The Protein Atlas
  - Theoretical biotechnology

- School of Computer Science and Communication (CSC)
  - Human-computer interaction
  - Media technology and graphic arts
  - Numerical analysis
  - Speech, music and hearing communication
  - Theoretical computer science

- School of Electrical Engineering (EE)
  - Energy and smart grids
  - Experimental fusion plasma and space plasma physics
  - Information and communications systems
  - Medical applications
  - Network, information and control systems
  - Vehicle technology and transport

- School of Industrial Engineering and Management (ITM)
  - Energy technology
  - Industrial product development
  - Industrial production
  - Materials science and engineering

- School of Information and Communication Technology (ICT)
  - Communication: services and infrastructures
  - Electronic systems
  - Integrated devices and circuits
  - Material physics
  - Photonics and optics

- School of Chemical Science and Engineering (CHE)
  - Chemistry
  - Chemical engineering
  - Fibre and polymer technology

- School of Engineering Sciences (SCI)
  - Aeronautical and vehicle engineering
  - Applied physics
  - Fluid mechanics
  - Mathematics
  - Mathematical statistics
  - Mechanics, especially biomechanics
  - Optimisation theory and systems theory
  - Physics
  - Solid mechanics
  - Theoretical physics

- School of Technology and Health (STH)
  - Health
  - Medical engineering

- Unit for Scientific Information and Learning (UBI)
  - Learning Lab
  - Library (KTHB)

KTH Business Liaison (BLI)

1) From 1 January 2011, the School of Education and Communication in Engineering Science (ECE) will be established. Operations from the Unit for Scientific Information and Learning plus the House of Science, the Language Division and Resource Centre for Net-based Education will be transferred to this new school.

2) KTH Business Liaison has been phased out during the autumn of 2010 and its operations have been relocated organisationally.
President’s preface

The KTH Strategic Plan states that KTH is to become an international university that compares well with the best in the world. The actual degree of excellence is, naturally, difficult to measure however certain indications are provided by the various ranking lists that are published. These show that KTH is among the most eminent universities in Europe.

The number of applicants to KTH Master of Science in Engineering, Architecture and Bachelor of Science in Engineering programmes in 2010 remained at the same level as in 2009 (which had showed a substantial increase on the year before). Approximately half of the applicants were able to start on a programme at KTH in 2010. However I would like to see an even larger number of applicants, and consequently even greater competition for places. In that the number of 19-year-olds will decrease over the next few years, information and recruitment efforts will remain our highest priority.

Over the last few years there has been a gradual reduction in the number of Master of Science in Engineering and Architecture programmes. It is therefore extremely gratifying to see that the number of graduates in and Architecture programmes. It is therefore extremely gratifying to see that the number of graduates in the number of Master of Science in Engineering programmes between five and seven years ago due to strained finances. In 2010 a substantial increase (17 percent) in students admitted to doctoral studies was observed. The total amount of active students at this level also increased by ten percent, consequently the number of graduating doctors is expected to increase over the course of the next ten years.

Developments in KTH research have been strong in 2010. Primarily expansion has occurred within the strategic research fields as determined by the Swedish government in the autumn of 2009. This mainly concerns the fields of energy, e-science, production technology, IT and mobile communications, transport and molecular biosciences. In 2010 extensive recruitment of faculty, postdoc fellows and doctoral students has been carried out.

The SciLifeLab, a project KTH is undertaking together with Karolinska Institutet, Stockholm and Uppsala Universities is especially interesting. Research groups from the universities in Stockholm have moved into a new building adjacent to Karolinska Institutet during the year. Planning is underway to further strengthen operations over the next five-year period and to build up absolutely world class activities linked to the new university hospital.

The construction of five cross-disciplinary research platforms is a tool aimed at gathering together KTH researchers, more clearly demonstrating KTH strengths and becoming a more interesting partner for external cooperating partners. The work of structuring the platforms has been intense during 2010 and I am looking forward with great interest to seeing the results that will emerge.

Another exciting development is the responsibility that KTH has been given for building up the European Institute of Innovation and Technology (EIT) within IT, ICT Labs and energy technology – InnoEnergy. Over the course of 2010 their organisation has been established and the first projects initiated. Specially interesting is its clear focus on what is termed the knowledge triangle, in other words interaction between education, research and innovation.

In the KTH Strategic Plan 2009–2012 great weight is given to increasing the number of women in the student and faculty bodies. Over the last few years we have seen a gradual improvement in this aspect. Unfortunately this trend was reversed in 2010. One interesting observation is that the proportion of women graduating is greater than the proportion of women students. This is in line with other observations carried out at KTH which showed that women, on average, managed their studies better and somewhat more rapidly than men did. The work of improving gender equality at KTH has continued to be highest priority. The reasons for the trend reversal in 2010 will be carefully analysed.
Altogether KTH has shown extremely strong results this year, both as concerns operations and finances. KTH is growing and one indication of this is the increase in the number of full year employees. Agency capital and the unutilised grants provide us with resources for further investment. In 2010, extra investments were initiated due to positive economic development forecasts. I believe that these will exert an effect in 2011.

One exciting project that was initiated in 2010 was the establishment of a long-term KTH vision. Its working name is Vision 2027 to show connection to the KTH bicentennial in that year. Vision 2027 will be adopted during the autumn of 2011. I look forward to developments next year with great confidence.

Peter Gudmundson
Education

NEW STUDENTS ON KTH EDUCATIONAL PROGRAMMES
Admissions to KTH Master of Architecture, Master of Science and Bachelor of Science in Engineering, Bachelor degree programmes, one and two-year master programmes, two-year university diploma programmes, the Technical Preparatory Year and further education courses are carried out through a national admissions system that is run by the National Agency for Services to Universities and University Colleges. A local admissions system has been applied to applications to join later parts of KTH educational programmes. In addition, some of the places at Master of Science and Bachelor of Science in Engineering programmes have been allocated to students who successfully completed the KTH Technical Preparatory Year or Term. In 2010 a total of 2 401 (2 497) new students entered traditional KTH educational programmes of whom 1 814 (1 872) joined the Master of Architecture and Master of Science in Engineering programmes and 647 (625) the Bachelor of Science in Engineering programmes. In addition 768 (770) new students were admitted to the Technical Preparatory programmes.

In 2010, 153 (137) students began on KTH Bachelor degrees. The two-year university courses in Real Estate and Finance and the similar course in Construction Technology had a total of 101 (105) new students.

A total of 1,490 (1,647) new students began Master programmes of which 163 (273) began a one year Master programme. The majority of these programmes use English as their language of instruction.

Admission and recruitment of women
Of the new students on Master of Architecture and Master of Science in Engineering programmes in 2010, 28 (33) percent were women, which is the same level achieved by KTH 3–4 years ago. Of all new students in 2010, 27 (29) percent were women. However distribution between the various KTH programmes varies widely.

On certain KTH programmes the proportion of women students has exceeded 40 percent for several years (Master of Architecture, Master of Science in Engineering programmes in biotechnology, design and product realisation plus medical engineering). The same also applies to bachelor level educational programmes in construction and real estate and finance. The Master of Science in Engineering programme in energy and environment began in 2010 with women making up 47 percent of the new students. The share of women in the new student group on the one and two-year Master programmes in 2010 amounted to 26 percent. On the Bachelor degree programmes there were 29 percent women and 41 percent on the two-year University Diploma programmes.

Review of entrance and exit points for KTH educational programmes
According to the KTH Strategic Plan, the number of educational programmes and course entrance points is to decrease by 2012. There are several processes underway aimed at achieving this goal.

Work with the establishment of one or two Master of Science in Engineering programmes within the engineering fields encompassed by the current Master programmes in computer engineering, IT, electrical engineering and microelectronics has been underway in 2010. A decision will be made during the spring term of 2011.

A review of the KTH range of Master programmes was initiated in 2010 in order to respond to the anticipated reduction in applications from third country students for studies beginning autumn term 2011. These activities are ongoing and KTH is waiting to observe the results of the admissions procedure for the autumn term 2011, as well as other aspects of the situation.

RECRUITMENT OF STUDENTS TO FIRST LEVEL KTH COURSES
Recruitment goals
The overall goal for recruitment activities is to interest young people in the education offered at KTH. Target groups are primarily young people at upper secondary schools, adult education students and individuals who have started their careers. In addition, KTH works long term with children in the compulsory school. KTH has established a communications platform aimed at promoting and broadening the KTH student recruitment base. This platform states what KTH should communicate to
### Total Number of New Students and Proportion of Women in This Group 2007-2010

<table>
<thead>
<tr>
<th>Master of Science in Engineering and Master of Architecture, Degree Programme 300 HE credits</th>
<th>2010</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science in Engineering and Master of Architecture, Degree Programme 300 HE credits</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
</tr>
<tr>
<td>Architecture</td>
<td>110 58%</td>
<td>113 52%</td>
<td>111 61%</td>
<td>106 60%</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>81 56%</td>
<td>82 59%</td>
<td>71 68%</td>
<td>69 48%</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>41 29%</td>
<td>41 51%</td>
<td>41 41%</td>
<td>51 43%</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>192 13%</td>
<td>175 8%</td>
<td>165 7%</td>
<td>174 5%</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>109 48%</td>
<td>111 48%</td>
<td>100 53%</td>
<td>103 38%</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>65 11%</td>
<td>62 13%</td>
<td>50 12%</td>
<td>61 11%</td>
</tr>
<tr>
<td>Energy and Environment</td>
<td>53 47%</td>
<td>53 50%</td>
<td>52 43%</td>
<td>52 43%</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>104 7%</td>
<td>118 18%</td>
<td>105 5%</td>
<td>105 9%</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>142 27%</td>
<td>143 36%</td>
<td>135 28%</td>
<td>137 25%</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>91 12%</td>
<td>108 23%</td>
<td>65 22%</td>
<td>85 14%</td>
</tr>
<tr>
<td>Chemical Science and Engineering</td>
<td>84 35%</td>
<td>112 50%</td>
<td>97 51%</td>
<td>110 44%</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>142 16%</td>
<td>141 19%</td>
<td>132 23%</td>
<td>139 20%</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>47 17%</td>
<td>48 35%</td>
<td>42 31%</td>
<td>50 28%</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>55 47%</td>
<td>56 61%</td>
<td>57 47%</td>
<td>57 47%</td>
</tr>
<tr>
<td>Media Technology</td>
<td>75 37%</td>
<td>98 39%</td>
<td>76 34%</td>
<td>72 32%</td>
</tr>
<tr>
<td>Microelectronics</td>
<td>50 12%</td>
<td>69 10%</td>
<td>46 2%</td>
<td>48 13%</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>152 35%</td>
<td>168 43%</td>
<td>142 44%</td>
<td>152 49%</td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>113 15%</td>
<td>118 25%</td>
<td>109 22%</td>
<td>123 26%</td>
</tr>
<tr>
<td>Open entrance</td>
<td>108 31%</td>
<td>109 30%</td>
<td>106 27%</td>
<td>118 28%</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>1,814 28%</td>
<td>1,872 33%</td>
<td>1,650 32%</td>
<td>1,703 29%</td>
</tr>
</tbody>
</table>

Bachelor of Science in Engineering, Degree programme 180 HE credits

<table>
<thead>
<tr>
<th>Bachelor of Science in Engineering, Degree programme 180 HE credits</th>
<th>2010</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Engineering, Degree programme 180 HE credits</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
</tr>
<tr>
<td>Constructional Engineering and Design</td>
<td>168 33%</td>
<td>167 30%</td>
<td>130 32%</td>
<td>122 33%</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>129 5%</td>
<td>160 8%</td>
<td>97 6%</td>
<td>100 6%</td>
</tr>
<tr>
<td>Electronics and Computer Engineering</td>
<td>36 6%</td>
<td>36 14%</td>
<td>32 6%</td>
<td>32 6%</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>47 9%</td>
<td>27 7%</td>
<td>18 17%</td>
<td>18 17%</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>38 39%</td>
<td>38 45%</td>
<td>19 58%</td>
<td>23 48%</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>102 12%</td>
<td>108 23%</td>
<td>85 19%</td>
<td>66 27%</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>47 38%</td>
<td>30 53%</td>
<td>27 59%</td>
<td>48 42%</td>
</tr>
<tr>
<td>Media Technology</td>
<td>50 28%</td>
<td>59 22%</td>
<td>48 21%</td>
<td>42 21%</td>
</tr>
<tr>
<td>Engineering and Economics</td>
<td>80 28%</td>
<td>80 28%</td>
<td>76 27%</td>
<td>71 26%</td>
</tr>
<tr>
<td>Engineering and Health</td>
<td>16 44%</td>
<td>16 44%</td>
<td>15 46%</td>
<td>15 46%</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>647 21%</td>
<td>625 22%</td>
<td>472 24%</td>
<td>488 25%</td>
</tr>
</tbody>
</table>

Masters programmes

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters programmes</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
</tr>
<tr>
<td>Masters programmes 120 HE credits</td>
<td>1,327 25%</td>
<td>1,374 26%</td>
<td>1,395 25%</td>
<td>1,022 28%</td>
</tr>
<tr>
<td>Masters programmes 90 HE credits</td>
<td>16 38%</td>
<td>16 38%</td>
<td>16 38%</td>
<td>16 38%</td>
</tr>
<tr>
<td>Masters programmes 60 HE credits</td>
<td>163 40%</td>
<td>273 29%</td>
<td>222 29%</td>
<td>116 36%</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>1,490 26%</td>
<td>1,647 26%</td>
<td>1,617 25%</td>
<td>1,154 34%</td>
</tr>
</tbody>
</table>

Bachelors programmes 120 HE credits

<table>
<thead>
<tr>
<th>Bachelors programmes 120 HE credits</th>
<th>2010</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors programmes 120 HE credits</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
<td>number of women</td>
</tr>
<tr>
<td>Business Engineering</td>
<td>48 21%</td>
<td>35 34%</td>
<td>45 38%</td>
<td>36 39%</td>
</tr>
<tr>
<td>Real Estate and Finance</td>
<td>68 41%</td>
<td>63 35%</td>
<td>59 27%</td>
<td>44 50%</td>
</tr>
<tr>
<td>Information and Communication technology</td>
<td>37 16%</td>
<td>39 28%</td>
<td>33 36%</td>
<td>17 24%</td>
</tr>
<tr>
<td>Medical Informatics</td>
<td>19 68%</td>
<td>19 68%</td>
<td>19 68%</td>
<td>19 68%</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>153 29%</td>
<td>137 33%</td>
<td>156 37%</td>
<td>120 39%</td>
</tr>
</tbody>
</table>

Technical Preparatory Year, Technical Preparatory Semester

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>University Diploma programmes 120 HE credits</td>
<td>768 30%</td>
<td>770 30%</td>
<td>616 29%</td>
<td>575 29%</td>
</tr>
<tr>
<td>Construction management</td>
<td>33 15%</td>
<td>39 18%</td>
<td>45 29%</td>
<td>31 10%</td>
</tr>
<tr>
<td>Constructional Technology and Real Estate Agency</td>
<td>68 53%</td>
<td>66 56%</td>
<td>66 64%</td>
<td>70 53%</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>101 41%</td>
<td>105 42%</td>
<td>111 50%</td>
<td>101 32%</td>
</tr>
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TOTAL

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<th>TOTAL</th>
<th>2010</th>
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<tr>
<td>TOTAL</td>
<td>number of women</td>
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<tr>
<td>4,973 27%</td>
<td>5,156 29%</td>
<td>4,622 29%</td>
<td>4,141 31%</td>
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centres and, to a certain extent, the ordinary schools throughout Sweden. This year the KTH student ambassadors made around 150 school visits and received around 30 study visits at KTH. The student ambassadors also participated in exhibitions and trade fairs and other activities, for example guiding visiting parties of school pupils around KTH and providing them with information. They represent most of the KTH programmes and the various campuses and they are chosen with great care. In addition they must reflect the diversity at KTH, primarily as concerns ethnicity and gender. All student ambassadors complete a training course that consists of youth communication, presentation techniques etc.

possible future students and forms the basis of the activities and measures planned or underway aimed at achieving goals such as a better gender balance, less skewed recruitment as concerns social groupings and the stimulation of diversity as concerns ethnicity.

**Activities**

Recruitment activities have prioritised face-to-face meetings between representatives of KTH and possible future students. KTH runs intensive cooperation programmes with upper secondary schools. These activities are primarily carried out by around 40 student ambassadors. Every year they visit upper secondary schools, adult education centres and, to a certain extent, the ordinary schools throughout Sweden. This year the KTH student ambassadors made around 150 school visits and received around 30 study visits at KTH. The student ambassadors also participated in exhibitions and trade fairs and other activities, for example guiding visiting parties of school pupils around KTH and providing them with information. They represent most of the KTH programmes and the various campuses and they are chosen with great care. In addition they must reflect the diversity at KTH, primarily as concerns ethnicity and gender. All student ambassadors complete a training course that consists of youth communication, presentation techniques etc.
Cooperation with schools and upper secondary schools

KTH currently cooperates with around 30 upper secondary schools in Stockholm. Upper secondary school students and their teachers gain access to KTH competence and equipment, for example through lectures, courses, theme work or lab work. Via KTH’s website, upper secondary school students are offered projects within areas where the university is able to provide knowledge and support. This gives the upper secondary school students the opportunity to gain in-depth knowledge and brings them into closer contact with higher education.

In 2010, KTH participated in activities in cooperation with the Stockholm Academic Forum (StAF). One of these was Ung08, one of Europe’s biggest youth festivals for children and young people.

<table>
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<tr>
<th>FIRST AND SECOND LEVEL ACADEMIC PERFORMANCE Degrees</th>
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| In 2010 a total of 1,173 Masters of Architecture and Masters of Science in Engineering graduated as compared to 957 in 2009. In 2010 the number of degrees issued that encompassed 300 higher education credits continued to increase, 196 Master of Science in Engineering degrees were of the new type. There were 47 Master of Architecture degrees awarded that encompassed 300 higher education credits, which was also an increase on the previous year. The previous government goal for KTH stipulated that at least 4,700 Master of Science in Engineering degrees were to be awarded over the period 2009–2012. Results from 2009 and 2010 provide a total of 1,968 degrees which is 42 percent of the previous formulation of the goal. 2010 is the third year that KTH has awarded one and two-year Master degrees in accordance with the new degree procedures. During this year 686 (495) one-year degrees and 126 (66) two-year degrees were awarded. In accordance with the older regulations, 74 (184) Master of Science degrees and 12 (31) Master degrees in broader subjects were awarded this year. The number of Bachelors of Engineering continues to increase substantially from the previous year, KTH has awarded 192 (117) such degrees in 2010. This is partially due to an early effect of the Bologna-adaptation of educational programmes, as well as to the fact that students from more KTH bachelor programmes have graduated during the year. In addition 258 (259) Bachelors of Science in Engineering have graduated and 60 (53) University Diplomas have been awarded. There were 32 (29) percent women in the graduating group of Masters of Architecture and of Science in Engineering. Among graduates from one and two-year Master programmes there were 32 (28) percent women. Bachelors of Science in Engineering were 32 (24) percent women.

Performance

In 2010, there were a total of 14,073 full-year equivalent students and 11,433 full-year equivalent performances in first and second level education. Of the total number of full-year equivalent students, 89 per cent were studying engineering or natural sciences.

Performance rate for KTH courses at first and second levels is 82 percent this year, the same level as in 2007.
The performance rate for all KTH first and second level programmes was 81 (82) percent. Performance rate for Master of Science in Engineering and Master of Architecture courses was 82 (86) percent, while the rate for Bachelor of Science in Engineering courses was 80 (83) percent. Performance rate for master's courses (one year and two years) was 85 percent as compared to 87 percent last year.

One reason for this dip in performance rates was that KTH has made certain changes in response to the stricter CSN (Swedish Board for Study Support) interpretation of the Study Support Act in which an assessment is made every term without making allowances for the organisation of the academic year. Alterations consist of the fact that certain examinations that were previously carried out before the end of the year have been moved to the beginning of 2011, which has affected the performance rate for 2010.

Bridging courses between upper secondary school and university
In 2010, KTH continued to offer technical and natural science applicants Internet-based courses aimed at bridging the gap between upper secondary school and university. The aim is to support university first year students and facilitate the transfer from upper secondary to university levels. These preparatory courses in mathematics were joined by 997 students. There were 88 full-year equivalent students on the bridging courses. KTH cooperates with several other universities and university colleges as concerns this mathematics bridging course. Students are registered in, and graduate from, the universities they apply to.

This year KTH also offered bridging courses in other subjects such as physics, programming and computer science plus chemistry. The scope of these courses has increased considerably since last year in spite of the fact that the number of maths students decreased. It is primarily the courses in programming and computer science, but also to a certain extent physics, that have attracted most students. KTH had a total of 2,219 participants who were the equivalent of 192 full year students.

Technical Preparatory Programme
This programme has been provided by KTH since 1992 and is a one-year qualifying course aimed at students who have not participated in the natural sciences programme in upper secondary school. This encompasses two terms and provides additional training at upper secondary school level in mathematics, physics and chemistry. Since 2004 it has also been possible to study only one term of this year which is especially suitable for students who have completed the technical programme at upper secondary school. Passing the technical preparatory year or term guarantees the student a place on one of KTH’s Master or Bachelor of Science in Engineering programmes. Since the autumn term of 2002, KTH also provides a technical preparatory year in combination with a Bachelor of Science in Engineering specialising in medical engineering or Bachelor of Science in Engineering in combination with economics.

Of those who began the Technical Preparatory Programme in the autumn term of 2009 or the spring term of 2010, 43 (35) percent or a total of 339 students (27 percent women, 73 percent men) continued to a KTH Master of Science in Engineering or a Bachelor of Science in Engineering programme.

In 2010, 768 students enrolled on the Technical Preparatory Programme, compared with 770 the previous year. Women accounted for 30 (30) percent of new students. Results for 2010 are 595 full years student equivalents and 398 full year performance equivalents.

STUDENT INFLUENCE AT KTH
The University Board took a decision in the spring of 2010 that the Royal Institute of Technology Student Union, THS, would be allocated the position of student union for the entire university from 1 July 2010 until 30 June 2013. KTH and THS have cooperated for a considerable period of time and students are represented in all KTH’s decision-making bodies and almost all preparatory and working groups. These include, for example, the University Board.
Board, faculty boards, KTH’s Management Group, course committees, the Disciplinary Board, school boards and appointments boards as well as working groups for various studies. Student representatives on the boards of schools each have special responsibility for an educational programme. In the future (THS) will continue to appoint representatives to the various committees and boards. In the experience of the university, the Student Union selects students representing different areas of KTH and, as far as possible, appoints both female and male student representatives. KTH and THS cooperate with the aim of continuously developing the annual reception of new students. These reception activities are organised by older students together with the relevant staff in the various educational programmes and are implemented in cooperation with different sections of the Student Union. This year special efforts have been made to develop reception activities for international students.

**COOPERATION WITHIN EDUCATIONAL PROGRAMMES**

**Master of Science and Teaching Qualification**

In the autumn of 2002, a combined Master of Science in Engineering and Education Programme (300 higher education credits) was launched. The programme has three specialisations: mathematics and physics, mathematics and chemistry, and mathematics and IT/computing. KTH is responsible for 210 higher education credits and Stockholm University (SU) for 90 higher education credits. Students are awarded a Master of Science in Engineering and an Education Degree, which qualifies them to teach their subject combinations at upper secondary level. The programme concludes with a degree project (30 higher education credits), which is common to both parts of the degree.

In the autumn of 2010 41 (41) students entered this course – 12 (12) within mathematics and IT/data, 20 (21) within mathematics and physics and 9 (8) within mathematics and chemistry. There were 29 (51) percent women among the new students. In 2010, 14 students graduated from the programme and a total of 29 students have graduated since the programme began.

In April 2010 the Swedish Parliament took a decision that these programmes are to be amended in accordance with the proposals in the Government Bill entitled Best in Class – a New Programme for Teachers (2009/10:89, 2009/10:UbU16, 2009/10:248). The cohesive teaching qualification is to be replaced by four new professional degrees: Pre-school teacher, Compulsory School teacher, Subject teacher and Vocational teacher. KTH cooperates with Stockholm University (SU) in this combination educational programme which earns a Master of Science in Engineering degree from KTH and an Education degree from SU. Due to this new reform, KTH and SU agreed to develop cooperation in the fields of teaching qualifications in mathematics, natural sciences and engineering/technology. Based on this agreement, KTH has applied for the right to issue degrees for subject teachers in mathematics, physics, chemistry and engineering at upper secondary school level and subject teachers in engineering/technology for Years 7–9 of the compulsory school. These applications are based on continued cooperation with SU as concerns the educational science core of the programmes.

**Sfinx**

In 2008 Sfinx (Swedish for Engineers in Stockholm County) was initiated. Sfinx is a cooperative venture between KTH, Järfälla Municipality, Stockholm City and Stockholm County Administrative Board. The project is supported by the Ministry of Integration. In the academic year 2009/2010, these operations have been implemented as a project but from 1 January 2011 they will belong to ordinary operations at KTH. The Stockholm Region has received a lot of positive attention for this integration activity, not least for the good levels of cooperation between the various educational organisers. Four groups of approximately 100 participants will start up on a continuous basis every year. In the last group, 25 percent of participants gained jobs as engineers during the course of this educational programme.

**RESEARCH AND DOCTORAL STUDIES**

**Objective**

The objective is to provide society with qualified researchers who can contribute to sustainable social development.

**Admissions**

Doctoral studies at KTH are extremely attractive. Applications for doctoral studies at KTH far exceed resources. In 2010, 407 doctoral students were admitted as compared to 347 in 2009. For those who could not be admitted, lack of funding for studies was given as the reason in almost all cases although a few schools also stated lack of supervisors and suitable premises as the reasons why more students could not be admitted. Of the first-year doctoral students, 28 percent were admitted to take a licentiate degree which is considerably lower than both 2009 and 2008 (33 and 34 percent).

A total of 56 of the new research students, 23 percent women and 77 percent men, have their primary operations outside the university and are taking their doctorates within the framework of their employment at, for example, a company or government agency (industrial doctoral students), which again is an increase in comparison to last year.
The proportion of newly-admitted research students with a foreign educational background has decreased in comparison to 2009. Of the new students in 2010, 38 (45) percent graduated in a country other than Sweden. In 2010 the proportion of women in this group amounted to 31 percent while the percentage of women in the entire student body was 29 percent. This is approximately the same level as in 2009.

Recruitment

During the year 137 funded doctoral positions have been advertised which is more than in 2009 (92). Applicants to these position numbered 4,144 (2,651) individuals, of whom 13 (18) percent were women and 87 (82) percent were men. This is a very positive development as interest in doctoral studies at KTH continues to increase. In 2010 all schools, with the exception of one, stated that interest in research studies has increased in comparison to previous years. Interest level is unchanged for the one school. The number of women, 544 (486), applicants has also increased this year even if the percentage has fallen. In addition to funded doctoral positions, 24 (14) study grants have been advertised which attracted 192 (87) applicants of whom 18 (15) percent were women and 82 (85) percent men.

Recruitment to doctoral studies often occurs via contacts between researchers and students in the final year of Master of Science in Engineering educational programmes or in connection with degree projects. It is also becoming more common to recruit doctoral students from the Masters programmes. Many interested students also contact KTH directly via e-mail, telephone or letters. Other routes include the recruitment of research students within the framework of joint research projects with industry by targeting information to special groups.

Financing of studies

Of the 1,969 students registered for doctoral studies at KTH in 2010, 1,683 students have been active to at least 50 percent and 1,946 to at least ten percent. In 2010 funded research places continued to be the dominant form of financing of doctoral studies. By the end of the year approximately 910, or 51 percent of KTH students at research level, were using this form of financing, part time or full time. This group consisted of 29 percent women and 71 percent men.

Graduate schools

There are currently 14 (10) graduate schools at KTH and in most cases these cooperate with other universities and/or industry. A graduate school is defined as a cohesive programme that includes participation by KTH and partner universities. Graduate schools often enjoy external financing and a pre-determined lifetime. They may also show a cross-disciplinary breadth. Approximately 250 doctoral students (28 percent women and 72 percent men) at KTH have participated in the research courses that have been provided within the framework of the graduate schools. In addition a further 70 or so doctoral students from other universities have also participated.
The review of KTH doctoral studies that has been underway for several years now has, in 2010, resulted in a new system of doctoral programmes for education at research level. These are cohesive educational structures including one or several research subjects in which more extensive supervisory capacity and financing basis guarantees a long-term, robust educational environment. These doctoral programmes may involve one or several schools within KTH and provide opportunities to collaborate between educational fields in order to provide a broader range of courses and a wider perspective for thesis activities. It also provides doctoral students with opportunities to be part of a larger student group and to participate in joint programme activities in order to develop better social cohesion within educational programmes. Doctoral students will consequently be well prepared for work in both academia and in society.

KTH schools have submitted applications in 2010 which have been processed by the Faculty Board. As a result 28 doctoral programmes have been established and will start up in 2011.

**Degrees**

In 2010, 201 (222) doctors and 115 (128) licentiates graduated. Of the doctorates awarded in 2010, 33 (27) percent went to women and concerning licentiate degrees 21 (34) percent were awarded to women.
KTH’s previous government target for the period 2009–2012 included 830 third level degrees. The number of degrees is calculated so that the total number of degrees per person never exceeds 1.0. A doctoral degree is consequently counted as 1.0, a licentiate degree as 0.5 and a doctorate that has been preceded by a licentiate degree as 0.5. In 2010, 201.5 (233.5) such degrees were awarded. Even if the previous target is not still in place, it may be of interest to observe that 52 percent has been fulfilled.

At KTH, it is common to graduate as a licentiate as a stage in doctoral studies and a natural review of completed studies. A licentiate degree is a suitable first stage for a doctoral student, but a Licentiate of Engineering degree is also very relevant for employment in industry. Of the doctors graduating in 2010, 57 percent had previously earned a licentiate degree.
Research

PLATEFORMS
Major, global challenges often require multi and cross-disciplinary approaches, not only for the actual research but also in order to adapt results to end users be they organisations or individuals. In many areas, strong research groups from KTH can benefit greatly from each others’ knowledge, together with external cooperating partners and other stakeholders, by gathering their forces together into broadly-based research projects.

KTH platforms have been created in order to develop this type of multi-disciplinary research cooperation within five fields:
• Energy
• ICT
• Material
• Medical and biomedical engineering
• Transport

The primary role of these platforms is to act as catalysts for large-scale, multi-disciplinary research initiatives. The actual research is carried out by KTH research groups, often consisting of researchers from several KTH schools together with external cooperating partners. Many projects concern more than one platform.

Platforms will maintain, with support from external stakeholders, strategic monitoring processes that encompass both future research challenges and political issues within each area. These platforms play an advisory role as concerns future investments in their fields of expertise.

This year extensive operations have been underway to structure up the KTH platforms. A survey of existing research and research capacity was carried out at the beginning of the year. Strategy development has received valuable external support via the International Scientific Advisory Boards attached to each platform. These boards consist of prominent researchers from both academia and industry. KTH researchers from all schools have been deeply involved in the construction of these platforms. Platform Days were held in November for energy and ICT in which researchers from different schools and subject areas met. This type of platform day will be implemented for the other platforms at the beginning of 2011.

STRATEGIC RESEARCH AREAS (SRA)
The Government’s call for applications for strategic research funding resulted in KTH grants primarily in the research areas energy, e-science, IT and mobile communication, molecular bioscience, production engineering and transport.

As a part of this new investment in strategic research areas, new recruitments to academic positions have been implemented in 2010. Totally 18 positions have been advertised, half of which were assistant professors.

These strategic research areas will, as tasked by government, be evaluated in 2014. Until this date, annual follow-up will be submitted to the relevant government agencies.

EUROPEAN INSTITUTE OF INNOVATION AND TECHNOLOGY (EIT)
Within the multi-disciplinary EU cooperation project entitled European Institute of Innovation and Technology (EIT), three Knowledge and Innovation Communities (KICs) have been started up each with four-five participating countries and cities:
• Climate change mitigation and adaptation: Climate-KIC
• Sustainable energy: KIC InnoEnergy
• Future information and communication society: EIT ICT Labs

Stockholm and KTH are participants in two of these KICs – InnoEnergy and ICT Labs.

KIC InnoEnergy
InnoEnergy consists of partnership collaboration between 13 universities, 10 research institutes and 13 companies in Europe. The partners have undertaken long-term responsibility for building up this organisation over the course of seven years. In the longer perspective the organisation is to become self-financing. Its aim is to connect education, research, innovation and entrepreneurship in the entire European energy system. Prioritised area for InnoEnergy is sustainable energy. The InnoEnergy vision is to pave the way for an independent, sustainable energy system that will enable a climate neutral Europe by 2050 through the successful commercialisation of innovations such as new products, services and business concepts. By bringing together universities, industry and research institutes, co-location will build up the operations of the partners. Some are core partners (in Sweden Uppsala University, KTH, ABB and Vattenfall) some are affiliated partners (currently Fortum, SfV, STRI, Ericsson, Seabased, Power Circle, STING, Logica, Stockholm Clean Tech Business Network and Technion). Sweden is responsible for the European Smart Grids and Electric Storage technical areas. In addition to the thematic projects that are run by each co-location centre, there are horizontal projects in which all co-location centres collaborate, these are termed LightHouse Inno-driver projects. These are proposed by one of the partners and are then accepted by the Board of InnoEnergy. Inno-driver projects are organisationally located at central level but they are led by the partner who formulated the project.
EIT ICT Labs

KTH took a leading role during the application phase and in 2010 was host to the European organisation for EIT ICT Labs as well as working to build up the Swedish node which is one of five (Berlin, Eindhoven, Helsinki and Paris are the others) which together form EIT ICT Labs. A KIC is a long-term investment and for EIT ICT Labs this means support for a period of 7–15 years with the goal of creating its own financial basis. It has been estimated that a KIC will turn over SEK 1 billion annually when it is fully established. For Stockholm this would mean around SEK 150 million annually. The focus of this investment lies on innovation and entrepreneurship within education, research and enterprise. The goal is to improve Europe’s opportunities to transform research to innovation and innovation to products and services in order to create economic welfare. In 2010, the Stockholm node, in which KTH collaborates with SICS, Ericsson and TeliaSonera, has worked with building up its organisation and developing its first Plan of Operations for 2010 and 2011.

NEW RESEARCH GRANTS DURING THE YEAR, SOME EXAMPLES

- Kurt Johansson, Professor in Mathematics at KTH, has won a grant of SEK 15 million within the Wallenberg Scholars Programme. This programme aims to support and stimulate some of the most successful researchers at Swedish universities. Wallenberg Scholars is financed by the Knut and Alice Wallenberg Foundations and the grant is provided at SEK 3 million per year for a five-year period. The intention is to allow selected researchers to be able to work at a higher level of ambition as they are less handicapped by having to apply for external research funding. The ultimate aim is to ensure better international impact for their research with opportunities to invest in more long-term projects. Candidates have been nominated by universities and are expected, through their research and development potential, to contribute to strengthening the profiles of these universities.

- Ann-Christine Albertsson, Professor in Polymer Technology at KTH, has received an Advanced Investigators Grant from the European Research Council for research into polymer materials. Totally this will bring in approximately SEK 25 million over five years. This research will be aimed at new methods of constructing biodegradable material for total control of the bio degradation process. This type of material is relevant to, for example, tissue regeneration and the idea is to develop a system that works as nature itself does, i.e. that artificial tissue is replaced by the body’s own tissue at the correct pace and generates acceptable biodegradable products. The goal is a new generation of biodegradable polymer materials that do not exhibit traditional material problems such as fragment formation.

- The research group Spatial Analysis and Design (SAD) at KTH School of Architecture and the Built Environment has been awarded three research grants of together almost SEK 18 million. These three projects are led by Lars Marcus (social-ecological systems), Daniel Koch (construction morphology) and Alexander Ståhle (mobility) and explore different areas while still being based on the unique methodological and theory development that the research group SAD represents within Spatial Morphology. Theory that is on the leading edge of international knowledge development.

One of the grants of approximately SEK 5 million is a part of a larger EU project dealing with the development of methods to model buildings in order to be able to evaluate different security systems. The SAD research group sees opportunities for the project to develop a more substantial foundation for construction modelling generally. This project will be led by Daniel Koch but will also include other researchers and doctoral students at the school.

Another project, led by Alexander Ståhle (also receiving almost SEK 5 million) deals with running scenario studies of future possibilities for our cities given dramatically reduced car travel and alternative forms of urban mobility.

Finally SAD received a grant as part of a collaboration project with the Royal Academy of Science concerning development towards an urban morphology for social-ecological systems, i.e. a basis for future urban planning that integrates social, economic and ecological systems. This project has been awarded SEK 7.5 million and Lars Marcus is the Project Manager at the school.

- KTH is one of three Nordic universities that are part of a major investment in sustainability research. KTH, the Technical University of Denmark and Chalmers will form a research centre focussed on bioenergy and renewable energy resources. The Danska Novo Nordisk Fund has granted these three universities SEK 850 million – one of the largest individual research grants ever in Scandinavia. This research centre is to identify methods of streamlining the production of biofuels as well as producing chemicals in a resource and environmentally sustainable manner through the use of microorganisms such as yeast and bacteria instead of
oil-based raw materials. Research areas such as molecular biology, mathematical modelling, bioinformatics and fermentation technology will be included in this research centre. The primary location for the new centre will be the Technical University of Denmark and satellite centres will be set up at KTH and Chalmers. Mathias Uhlen, Professor of Microbiology is the KTH representative at the centre, and Björn Renberg, researcher in nanobiotechnology at KTH will be site manager for the KTH elements. The centre will be led internationally by Bernhard Palsson, Professor at the University of California, San Diego, USA.

- Gustav Amberg, Professor in Fluid Mechanics at KTH, has won a framework grant from the Swedish Research Council in the strategic energy field. This research project concerns energy transformation of blends of biofuels and conventional fuels — atomisation, vapourisation, mixing and combustion. The grant covers four years and totals SEK 12.8 million.

PRIZES/AWARDS WON THIS YEAR

- Dan Henningson, Professor in Fluid Mechanics at KTH, has won a research prize of SEK 560,000 from the Alexander von Humboldt Foundation in Germany. Dan Henningson was awarded this prize as recognition of the progress he has made as concerns research and teaching. The prize is personal and intended to be used to finance a research stay in Germany.

- Hedvig Kjellström, Associate Professor in Computer Science at the School of Computer Science and Communication at KTH has won, together with research colleagues Michael Black and David Fleet, the Koenenderink Prize for 2010. This prize was awarded for basic discoveries within computer vision which have stood the test of time. In the case of Hedvig Kjellström this deals with how human movement was reconstructed in 3D from a 2D video.

- Pär Kurlberg, Professor in Mathematics at KTH and Yi Luo, Professor in Theoretical Chemistry at KTH, has been awarded two of the five Göran Gustafsson prizes in 2010. These prizes have been awarded annually since 1991 within mathematics, physics, chemistry, molecular biology and medicine by the Göran Gustafsson Foundation for Natural Scientific and Medical Research. Nominations come from the country’s universities and university colleges and selection is made by the Royal Academy of Science. Each prize winner receives SEK 4.5 million as a research grant over three years, plus a personal prize of SEK 100,000.

- Two professors at KTH and one Affiliate Professor have received prizes from the Royal Academy of Science for their research efforts. Mark Pearce, Professor at the Division of Particle and Astroparticle Physics at KTH, has received the Wallmark prize for 2010. The prize, which consists of SEK 150,000, was awarded for the inventiveness of his instrument development which has resulted in new, widely-published knowledge concerning the occurrence of antimatter in cosmic radiation.

- Olof Ramström, Professor at the KTH Division of Organic Chemistry, has been awarded the Edlund Prize of SEK 90,000. He was rewarded for his studies of dynamic combinatorial chemistry and the development of important tools for selective organic synthesis.

- Astronaut Christer Fuglesang, who is an Affiliate Professor at KTH, has been awarded the Wargentin Medal in gold. Professor Fuglesang was awarded this medal for his dedicated efforts as an astronaut, researcher and inspirational speaker within the space field.

HONORARY DOCTORS 2010

What all these new KTH honorary doctors have in common is that their contacts with KTH have been of great value to the university’s research and education.

- Elizabeth Deakin, Professor of Urban and Regional Planning and Urban Design, University of California, Berkeley, USA.

  For her pioneering work in the fields of transport and land use planning and sustainable transport. Her work focuses on both developed and developing countries and addresses issues that relate to the sustainable development of transport, congestion charges and environmental justice, along with strategies to reduce greenhouse gas emissions from construction and transport systems.

- William Fulton is an Oscar Zariski Distinguished University Professor of Mathematics at the University of Michigan, Ann Arbor, USA.

  William Fulton is one of the most internationally prominent researchers in algebraic geometry. He has produced many results of lasting value and has contributed to a number of textbooks. His research on intersection theory and toric varieties has been crucial for subsequent developments in the field of mathematics.

- Scott Kirkpatrick, Professor at the School of Engineering and Computer Sciences, Hebrew University, Jerusalem.

  Scott Kirkpatrick is Professor in Engineering and Computer Science at the School of Engineering and Computer Sciences, Hebrew University, Jerusalem and has made fundamental discoveries in statistical physics and
computational mathematics. He is internationally known for his general, and at the same time computationally simple, method of solving combinatorial optimisation problems. The method is used worldwide, and the article in which the methodology was introduced is one of the most quoted in the journal Science.

Wilfried Wang, Professor at the University of Texas School of Architecture in Austin, USA.

Wilfried Wang is internationally known as a theoretician, educator and author of a wide range of books and articles. With an outstanding education in the subject’s historical background he has also highlighted the importance to our time of architects such as Heinrich Tessenov and Adolf Loos. Many of Wilfried Wang’s published works have been devoted to Swedish architecture and especially the architect Sigurd Lewerentz (1885-1975).

Figure 9

PROFESSORS 2010
Newly appointed professors (externally recruited)
Adaptive Manufacturing Systems
BioproductionTechnology
Building Services Engineering
Energy System Analysis
Geotechnical Engineering
International Business, Innovation and Entrepreneurship
Physics
Product Innovation Engineering

Promoted to professor
Electrochemistry in the field of Corrosion Sciences
Human Computer Interaction
Materials Theory for Metallic Alloys
Mathematical (2)
Microsystem Technology with direction towards Microfluidics
Numerical Analysis
Optimization and Systems Theory
Rail Vehicle Dynamics
Teleinformatics with emphasis on theory for parallel and distributed systems
Theoretical Biological Physics
Toxicological Risk Assessments
Water supply and wastewater technology

Newly appointed visiting professors (externally recruited)
Automatic Control (2)
Concrete Structures
Integrated Devices and Circuits
Mathematics (Tage Erlander Professor)
Regional Development with a Focus on Urban Management
Science and Technology Studies

Newly appointed part-time consulting professors
Corrosion Science with emphasis on Energy Processes
Engineering Chemistry especially Catalyst Decay, including the Use of Renewable Fuels
Environmental Strategic Analysis with emphasis on Policy Analysis
Environmental Strategic Analysis with emphasis on Transports
Forest Industry Energy Process
Hydroacoustics and numerical signal processing.
Industrial Economics and Management with specialization in Financial Mathematics Models and its Use
Material Mechanics for Nuclear Engineering Safety
Mathematical Statistics with specialization in the Insurance Mathematics
Probabilistic Risk and Safety Analysis with emphasis on Nuclear Energy
Risk Management in Geotechnical Engineering
Urban Planning and environment

Professors who have left or retired
Applied Materials Technology
Architecture
Building Materials
Concrete structures
Financial Control
Human Computer Interaction
Media Technology
Nuclear Power Safety
Numerical Analysis
Physics
Process Science of Materials
Soil and Rock Mechanics
Solid State Electronics
Speech Technology
Quality activities

GENERAL QUALITY ASSURANCE
Updating KTH Quality Policy
In 2010, a review was undertaken of the KTH Quality Plan from 2007. The aim was to update the plan taking into consideration the rapid developments that have occurred in-house at KTH and in the world around, for example as concerns the implementation of the KTH Strategic Plan, investments in strategic research areas and the introduction of a new national educational evaluation system. Both requirements and level of ambition were high. In the Strategic Plan, for example, it is established that all KTH operations are to possess a “well-communicated and accepted quality system based on the principle of continuous improvement”.

Four working groups and a Steering Committee and Reference Group based on faculty have been responsible for the work of updating the policy which has resulted in four reports providing current situation reports and analyses, as well as a new Quality Policy with Action Plan for the period 2011–2015. The analyses, which may be regarded as an evaluation of the 2007 Quality Plan, state that active quality operations have been underway at the various KTH levels, but that there are weaknesses as concerns how these have been communicated within the university. In certain cases the focus has been more on initiating activities than on following up their results.

With this in mind a decision was taken that the emphasis of the new Quality Policy and Action Plan is to be on results follow up and communication. As was previously the case, the principle of continuous improvement is to guide activities. Measures include the establishment of Improvement Groups who are able to analyse problems, identify solutions and implement change. Quality activities are divided into the education, research, competence management and collaboration areas. The Action Plan, that is to be followed up on an annual basis, identifies a limited number of prioritised activities within each area, as well as the follow-up methods to be applied.

Quality seminars
A series of quality seminars have been held in 2010 with the aim of stimulating strategic discussion on quality issues. Issues that have been brought up include collegiate academic management, research collaboration with business/industry, research financing for innovation plus strategies aimed at increasing young people’s interest in technology and natural sciences.

QUANTITATIVE FOLLOW UP
Indicators
At KTH, the internal control and distribution of funds for education and research is implemented through contracts between the President and the schools. Quality follow up forms a considerable element of the dialogue that is held between university management and the schools. In order to support this process, quantitative indicators are used. A review of these indicators has been initiated as a result of the work with the new Quality Policy.

Ranking
Over the course of the year KTH has supplied underlying material to the World University Ranking process which is implemented by Times Higher Education (THE) and to the World University Ranking presented by QS Top Universities. In the THE ranking, which is based on a totally new methodology, KTH came number 193. In the QS Top Universities ranking, where the previous THE methodology was used, KTH was ranked as the 150th best university in the world – an improvement of 24 places as compared to its previous THE ranking. In the Academic Ranking of World Universities which is carried out by Shanghai Jiao Tong University, KTH was placed within the span 201–300. In the national rankings published by the Chamber of Commerce and Industry of Southern Sweden och URANK/Fokus, KTH was in fifth and ninth places.

During the latter part of 2010, KTH has also participated in an extensive pilot project which will produce a totally new ranking system entitled U-multirank. The EU Commission has taken this initiative and probably U-multirank will become the leading European ranking system in the future.

SURVEYS
International Master students survey
In 2010, KTH carried out a survey of the newly-admitted international Master students concerning their background, how they found information on KTH educational programmes and why they chose the university. This survey showed that the majority of these students, 69 percent, come from Asia, 22 percent from Europe and the remainder from the rest of the world. The majority of these international students chose KTH due to its good reputation, free education, great interest in natural sciences and engineering and because these educational programmes provide the greatest career opportunities. Many students are also interested in continued studies at research level. Most obtained their information on educational programmes from the KTH website or through their personal networks.

Mid-term survey
In the spring of 2010, KTH carried out a survey of the slightly more than 2,000 students who had reached the halfway point in their Master of Architecture, Master of
Science in Engineering, Bachelor of Science in Engineering, Bachelor degree or University Diploma. Students were generally satisfied with their educational programmes, their degree of difficulty and subject content plus their own study efforts and knowledge development. Primarily women were satisfied with their own study efforts and knowledge development. Students require much of educational programmes, their organisation, teaching and lecturing quality. Students expect that educational programmes will be demanding and challenging, something that is considered to improve students’ attractiveness on the labour market. At the same time the survey shows that comparatively many students experienced stress and that one in three felt that the tempo was too high. A certain amount of criticism was also aimed at pedagogical design. Comparatively many students were worried about their financial situation, that they could not socialise with friends and family as much as they would like and that they may not find employment after graduation. One in three worried about not being able to complete their studies. Students felt that the best thing about KTH was the high quality of its educational programmes, the strong KTH brand, good future prospects and career opportunities as well as their teachers and course mates.

DEVELOPMENT PROJECTS WITHIN EDUCATION CDIO at KTH
Several objectives in the KTH Strategic Plan concern improved quality of educational programmes. In 2010 these activities were primarily channelled through the project entitled KTH Future Educational Programmes, which in turn has been divided into two sub-projects: CDIO at KTH and Academic introduction and mentor system.

It is a KTH objective that all educational programmes are to provide a progression of knowledge, abilities and skills according to the intentions of the framework Conceiving-Designing-Implementing-Operating (CDIO). Related objectives concern all educational programmes preparing students for their future professional role, including within entrepreneurship and innovation. The sub-project CDIO at KTH has aimed at creating the pre-conditions for this. Support material has been developed in the form of a template for strategic programme development. To date, 13 programmes have submitted individual Strategic Plans.

Within this sub-project an analysis has also been carried out of the programme goals stated within the new educational structure with, on the one hand 3+2 division into Bachelor and then Master courses, and on the other hand a cohesive five-year Master of Science in Engineering programme. In order to ensure that students are afforded the opportunity to achieve the ability and skills goals linked to CDIO and professional education, new local degree definitions are proposed into which these goals will be integrated.

In addition the following workshops have been carried out within this sub-project:

- Introduction to the CDIO model for integration of engineering skills. Lunch seminar with a total of 42 participants.
- Workshop on integration of communications skills, 20 people participated for one full day.
- Workshop on integration of skills into teamwork, 23 people participated for one full day.
- Changing Mindsets: Improving Creativity and Innovation in Engineering Education, twelve teachers participated in a one-week workshop at Stanford University organised in cooperation with the project entitled Product Innovation Engineering Program (PIEp).

Academic introduction and mentor system
The integration of an academic introduction into all educational programmes at first level, and the development and evaluation of a mentor system for new students are two of the objectives in the KTH Strategic Plan. A sub-project within KTH Future Educational Programmes has been tasked to support this process.

This sub-project has focussed on students’ career development, and has established a proposal as to how this can be integrated into educational programmes in various ways. Two pilot studies at the School of Chemical Science and Engineering and the School of Information and Communication Technology have been initiated. The sub-project also proposes that an e-portfolio be introduced in which students will be able to follow their own progress by reflecting on activities and processes within academic introduction and career development.

Development projects within the framework of the KTH Future Educational Programmes submitted their final report in December 2010, and in 2011 it will transfer to KTH ordinary operations.

UNIVERSITY TEACHING QUALIFICATION
One objective in the KTH Strategic Plan is that all teachers will have a university teaching qualification. In 2010 the work with realising this objective continued. Courses earning higher educational credits have been held within three different areas:

- Introduction to university teaching for doctoral students
- University teaching for lecturers
- Course for supervisors of doctoral studies
ORGANISATIONAL EVALUATION OF THE KTH SCHOOL SYSTEM

In 2010, KTH evaluated the advantages and disadvantages of the current schools organisational system that has now been in place for five years. Primarily the division of responsibilities and the decision-making structure have been evaluated as well as some other aspects which were mentioned in the conclusions and recommendations made by the Evaluation Steering Committee.

The Steering Committee considers that the KTH division into schools is successful from the division of responsibilities and decision-making aspects and recommends that KTH retains and further develops its current organisation. An evaluation of KTH educational programmes should be carried out in the same way as was previously implemented for research. A decision to carry out such an evaluation in 2011 has been made by the Faculty Board.

Furthermore the Steering Committee feels that the schools’ programme content should be reviewed as well as the school governance and in-house organisation. KTH management will, however, continue to bear the overall responsibility for all education and research operations.

The evaluation was also tasked to consider the imminent organisational changes that enter into force on 1 January 2011. The Steering Committee recommends that KTH continues to operate a common Faculty Board with overall responsibility for quality of education, research and academic appointments. The Faculty Board should continue to ensure collegial influence.

In December the KTH University Board determined working procedures for KTH that include the establishment of a Faculty Council. This Council will be allocated, generally speaking, the same responsibilities as the current Faculty Board.
Sustainable development

POLICY
Several of the major future challenges to humankind are found within the field of environment and sustainable development. Researchers and engineers have a key role to play in the development of technology and identification of solutions that enable the combination of high levels of welfare with low levels of environmental impact. In 2010 KTH intensified its efforts to become one of the leading universities within environment and sustainable development. A study was initiated in March 2010 in order to revise the KTH Policy and Action Plan for Sustainable Development. The study gathered together broadly-based underlying information on which to base its conclusions by carrying out a survey and interviews with key individuals within KTH. KTH performance in the field was also mapped in relationship to existing policy and action plans and in comparison to other universities and university colleges. The report was presented in November 2010.

In December 2010 the University Board took a decision on a revised Policy for Sustainable Development in accordance with the intentions of the report and tasked the President to follow up the Policy with practical measures including the establishment of an Action Plan.

The report made a proposal as to how the work of developing a sustainable campus is to be run, which included responsibility for environment management systems and follow up of energy, material and goods flows.

As concerns the development of a sustainability perspective in research, education and collaboration it was proposed that an interim body known as KTH Sustainability be established for the period 2011–2015 with the aim of making sustainable development visible and prioritised within KTH as the new Policy is implemented.

SUSTAINABLE DEVELOPMENT IN EDUCATION AND RESEARCH – SOME EXAMPLES
Several major research project are underway within KTH in the sustainable development field. These include the projects supported by MISTRA Energy efficient reduction of exhaust emissions from vehicles (jointly with Chalmers and Uppsala University) and MistraPharma and MISTRA’s field cell programme (of which KTH is Programme Coordinator). VINNOVA finances the Centre for Sustainable Communications (CESC) which is a forum for exchange of knowledge and cooperation between industry, government agencies and research, plus the Centre for Eco2 Vehicle Design and the iPack Center. A number of other research projects at KTH within sustainable development receive support from EU, the Swedish Energy Agency, the Swedish Environmental Protection Agency and FORMAS.

A new Master of Science in Engineering programme – Energy and Environment – started up in 2010. This programme is operated as a cooperative project between several KTH schools and has a clear emphasis on sustainable development. In addition, in 2010, twelve Master programmes were offered with more or less emphasis on the environment and sustainable development.

Better profiling and a more clearly-stated commitment to sustainability issues would facilitate future recruitment of students. In addition there is considerable potential to expand external research financing within sustainable development. KTH must take a more prominent place as concerns sustainable development both regarding campus environments and academic operations in the form of education, research and collaboration.
Internationalisation

INTERNATIONALISATION GOALS
In the KTH Strategic Plan for 2009–2012, the overall goal is that KTH is to be an international university and one of Europe’s most eminent technical universities. In addition the following practical goals for internationalisation activities were stated:
- The number of exchange students leaving from KTH is to double, from 338 to 675.
- The number of European students registered on one and two-year Master programmes to increase from 250 to at least 450.
- Exchange of teachers with foreign universities to increase.
- KTH degrees to be attractive on the international labour market.
- KTH to further develop cooperation with international elite universities.
- KTH to continue to be a leading partner within European Institute of Innovation and Technology (EIT).

UNIVERSITY FEES FOR THIRD COUNTRY STUDENTS
Beginning in the autumn term of 2011, fees will be introduced for third country students. These fees are to be established by each university and ensure that full cost coverage is achieved. In August 2010, KTH took a decision that fees for the majority of KTH programmes and courses would be SEK 145,000 per academic year. For programmes and courses within Architecture the fee level was set at SEK 245,000.

In 2010, KTH has prioritised a number of regions for various projects. The selected regions have been China, India, Southeast Asia, Brazil and North America. A contact person was appointed for each region with the task of increasing student exchange with the best universities in the region, disseminating the KTH brand and also creating opportunities to recruit master and doctoral students to KTH. In India an agent was also appointed with the task of recruiting paying students. This project was implemented jointly with Karolinska Institutet and was preceded by a pilot project in cooperation with the Swedish Institute.

During the year activities have also been underway aimed at strengthening student service and support for international students. An International Student Desk works with coordination of student service for KTH international students. Recruitment of an international study counsellor is also underway. In addition to support in education issues, help is also offered in a range of practical matters such as bank accounts, insurance and medical care. Fee-paying students will be guaranteed accommodation, be offered extended insurance cover and primary health care within the framework of KTH student health.

KTH intends to establish a connection with all fee liable applicants and, when they have been offered a place and accepted it, will maintain continuous contacts providing information on KTH, Stockholm and Sweden, as well as other practical, study-related information. Students will also be offered the special support of a mentor.

Scholarship management and distribution will be a new task for universities. KTH has taken a decision stipulating the criteria for the distribution of the funds allocated to KTH via the International Programme Office.

ERASMUS MUNDUS
In 2010, KTH prepared and coordinated the Erasmus Mundus Programme that was granted in 2009 for start in the autumn of 2010: five Action 1 master programmes, one Action 1 doctoral programme and one Action 2 (previously External Cooperation Window) scholarship programme for mobility of students and researchers between twenty or so technical universities in Europe and India.

During the course of the year KTH was granted coordinator status for another Action 1 doctoral programme and is participating as a partner in a new Action 1 master programme. Altogether KTH is participating in eleven Action 1 master programmes and three Action 1 doctoral programmes. In total there were 326 (196) Erasmus Mundus Action 1 students registered at KTH in 2010, of whom five were at doctoral level.

Within Action 2, in July 2010 KTH was granted coordinator status of another project aimed at Central Asia. Project participants are seven European universities and 13 partner universities in Tajikistan, Kyrgyzstan, Kazakhstan and Uzbekistan. In contrast to the previous project aimed at India, the aim in this project is mobility from Central Asia to Europe. In addition KTH is participating as a partner in an Action 2 project aimed at Brazil and China, one aimed at India and one aimed at Jordan, Lebanon and Syria. In 2010 there were 87 (40) students with Action 2 scholarships at KTH, of which 26 were at doctoral level. In addition 24 international researchers were working on Action 2 scholarships at KTH.

KTH is now one of the largest actors in Europe within the Erasmus Programme.

KTH’S AGREEMENT WITH THE CHINA SCHOLARSHIP COUNCIL (CSC)
Based on an agreement between KTH and the China Scholarship Council, a number of Chinese scholarship holders have joined KTH over the last five-year period. In 2010 there were 70 scholarships available which is the equivalent of a scholarship total of SEK 10.5 million to cover the needs of five master students, 30 doctoral
students (of which the majority have four-year scholarships), 30 postdocs and five visiting experienced researchers. During the year the level of scholarships for doctoral students was increased to the equivalent of the scholarships awarded by the Swedish Institute. This agreement provides a framework for strategic cooperation between KTH and the Chinese state and supplies strong support for KTH cooperation with China. It has also contributed to the strengthening of the KTH brand in China.

As interest among KTH professors in receiving funded doctoral students has increased, discussions were underway in the late autumn between KTH and CSC, which will probably result in more doctoral studies scholarships linked to KTH.

COOPERATION WITH INTERNATIONAL UNIVERSITIES

In the KTH Strategic Plan for 2009–2012 it is stated that KTH is to further develop its cooperation projects with international elite universities. In 2010 KTH made great efforts to develop or extend its cooperation with eminent universities in countries that are popular with KTH students wishing to study abroad, primarily in USA, Australia, Japan and Singapore. New agreements have been concluded with Ecole Polytechnique de Montréal in Canada and Hokkaido University in Japan. Opportunities for double diploma studies have also been expanded and a new agreement with Arts et Métiers ParisTech in France has been concluded.

Cooperation with two Singaporean partner universities, the National University of Singapore (NUS) and Nanewng Technological University, have been expanded to cover more students and these universities now form one of KTH’s major partners as concerns both students coming to, and leaving from, KTH. In addition to extensive student exchange, joint operations with NUS are underway at KTH. Cooperation was initiated in 2006 so that students from NUS could combine a one-year internship at a growth company in the Stockholm area with courses at Stockholm School of Entrepreneurship (SSES), primarily within entrepreneurship. New in 2010 is that KTH students may apply to the iLEAD Programme, an internship programme in cooperation with NUS.

NETWORK COOPERATION – CLUSTER

CLUSTER – a network consisting of twelve prominent European technical universities – is the single most important international university network for KTH. Until 30 June 2010, KTH was the Chair of Cluster. During the four years it was led by KTH, the network has developed into a platform and competence base for the development of joint Master programmes, including within Erasmus Mundus, for applications for funding within the various EU programmes plus as a cohesive unit for contacts with the EU Commission. This year Cluster developed a new website with a better interface for both students and partner companies. In addition, the network and its members have participated in exhibitions and conferences and also organised their own workshops aimed at the dissemination of knowledge concerning different EU programmes and the opportunities they provide.

KTH coordinates a CLUSTER project within the Lifelong Learning Programme named ATTRACTION. Its aim is to increase the interest level of European young people in education within natural sciences and engineering. Within the framework of the CLUSTER cooperation, KTH organised a workshop in Barcelona aimed at disseminating knowledge on the seventh EU Framework Programme’s project entitled Marie Curie in which representatives of the CLUSTER member universities and other Swedish seats of learning participated.

Work with the development of the Dual Degree Master Programmes has continued and currently the network offers 33 such programmes, of which KTH participates in eleven.

As part of its investment in business/industry collaboration, CLUSTER has developed relationships with suitable industrial companies which have been gathered together in an organisation named the Advisory Board. Currently the Advisory Board consists of 13 companies who all participate in applications to various EU programmes, provide proposals for degree projects, internship places and job offers to students etc.

INTERNATIONAL MOBILITY

Student exchange at first and second levels

Studies at overseas universities provide valuable experience prior to students beginning their professional lives. One of the objectives in the KTH Strategic Plan is stated as the doubling of exchange student numbers during the period 2009–2012 which is an ambitious goal and, among other measures, requires new forms of student exchange, information on the value of studies abroad and clearly-stated information on how such studies can be used to accrue degree credits.

In 2010, a total of 374 (376) KTH students began exchange studies abroad. Of the graduating Masters of Science in Engineering and Masters of Architecture in 2010, 30 (26) percent had studied abroad for at least one term. In total 526 (524) KTH students studied abroad in 2010.

During the year special efforts have been made to stimulate students to travel out by focussing on countries that are very attractive to them, countries such as USA, Canada,
Australia and Taiwan. For the fourth consecutive year an exhibition was arranged attended by representatives from ten or more universities outside Europe. Around 300 students came to look and learn. One method of increasing international experience is to encourage students to do their degree projects abroad. KTH allocates scholarships with this aim in mind from the Lifelong Learning/Erasmus and the Minor Field Studies programmes.

The number of exchange students coming to KTH has once again risen in 2010. During the year 1,507 (1,349) exchange students were pursuing their studies at KTH. This trend has risen steadily over a long period of time which proves that partner universities appreciate the education and study environment offered at KTH. As KTH cooperates with prominent universities, these exchange students are generally extremely well qualified. However the housing situation in Stockholm makes it impossible for KTH to receive any more than the number already agreed.

International exchange of students at research level
The international element of KTH research level staffing is considerable. More than one third of KTH students at third level have a previous degree from a country other than Sweden.

Twelve percent of licentiate graduates and 24 percent of doctoral graduates have spent at least three months of their study period abroad. Considerably more, 84 percent of licentiate graduates and 93 percent of doctoral graduates have, during their third level studies, participated in and reported their own research results at an international conference. During the year 70 students at third level spent at least one month abroad while 60 foreign students spent at least a month at KTH.

Internationalisation at home
In 2010, the KTH Master of Science in Engineering educational programmes assumed a structure that was more adapted to Bologna in which the Master programmes are fully integrated into the two final years of the Master of Science in Engineering programmes. Consequently Master of Science in Engineering students and master students participate in the same course which is positive for the integration of Swedish and foreign students.

During the year KTH introduced a transition programme for students who started on one of the KTH Master programmes. The aim was to facilitate the transfer from studies at undergraduate (first) level to those at postgraduate (second) level.

A number of activities aimed at highlighting other cultures and offering a forum for foreign and Swedish students to meet have been held, for example the Chinese
New year, the Persian New Year and the Indian Diwali Festival, the celebration of light. Interest has been great among both students and employees. In addition seminars aimed at students and/or staff have been held on various international themes such as the introduction of university fees, recruitment of paying students and information on different exchange programmes.

The KTH campus with its large group of foreign students and the fact that Master of Science in Engineering and Master students will be increasingly integrated into the same educational programmes in the future are in line with the goals stated in both the KTH Strategic Plan and in the government bill entitled New World – New University which states that students are to be prepared for an international labour market. This, in combination with various forms of exchange, provide KTH students with extremely good opportunities to gain international experience within their educational programme and consequently increase their own competitive edge on the labour market, both inside and outside Sweden.
Collaboration

In 2010, KTH actively developed researcher/teacher contacts with company CEOs, HR Managers and recruitment officers in selected sectors of business/industry. The task was to support KTH collaboration with business/industry, student establishment on the labour market and commercialisation and utilisation of KTH competence and research.

BUSINESS DEVELOPMENT AND GROWTH
The aim is to utilise KTH research and that this research leads to better business and increased growth for Swedish business/industry.

Focus has been on developing collaboration forms with companies and organisations within KTH strategic research areas. KTH has also developed collaboration forms aimed at stimulating mobility between academia and business/industry, including the Industrial Faculty project.

The construction of an Industrial Faculty is prioritised in the KTH Strategic Plan. The concept Industrial Faculty includes the establishment of strong contacts between KTH and society around it. This is to occur by linking individuals to KTH so that they feel commitment and participatory in KTH operations. In the autumn, a Vice President with responsibility for the KTH Industrial Faculty was appointed. This Vice President’s task consists of using various methods to strengthen ties with external research and development engineers and to build up strategic collaboration forms with KTH key partners.

INNOVATION OPERATIONS
Innovation operations are aimed at utilising KTH research by supporting researchers and students who wish to commercialise an idea or research result. In 2010, great emphasis has been placed on methods for the continued development of structure capital and processes intended to respond to the need for efficient, purpose-designed commercialisation support.

The Innovation Office
In 2010, KTH has begun to build up an Innovation Office. The operational concept is to build up a scalable support system for the commercialisation of technical research at universities in the Mälardalen Region in close cooperation with regional partners. Initial activities and measures have been aimed at studying how the various universities and colleges work with innovations, identifying areas in which they complement each other and sharing experience and contacts with other actors in the innovation system. One result of these activities is that Stockholm University and Mälardalen University have gained access to increased support for IPR (Intellectual Property Rights) through KTH’s cooperation with Uppsala University and that the structure capital that has been developed and tested at one university has been disseminated to the others.

The Innovation Office applies a broad approach to utilisation and offers various types of support to researchers. These may include, for example, researchers who intend to start up an innovative company, researchers with innovations that have arisen out of complex collaboration environments in which industry has participated, patenting or licensing. More than half of Sweden’s industrial research institutes are located close to KTH Campuses. Within the framework of the Innovation Office, KTH and these institutes will cooperate to identify ways of utilising competences and networks for verification and for finding the right industrial cooperating partner.

COMPANY CONTACTS
One of KTH’s most important tasks is supplying companies and organisations with qualified technical competence. Consequently KTH collaborates with HR managers in a number of companies. KTH also offers the Job Portal which enables companies to make direct contact with previous and current students. As the companies are able to reach the correct target group directly, this makes for efficient recruitment and positive exposure. An advertisement in the KTH Job Portal will put a company in contact with around 12,000 active members of the alumni network.

CAREERS
For several years KTH has provided students with support to help them become established on the labour market. These measures have included mentor programmes, career development modules in Master of Science in Engineering programmes, seminars on how to apply for jobs and proposals for degree projects via the National Degree Project Pool. In 2009 work was begun on further developing these operations which has continued in 2010. The goal is to integrate career development into KTH educational programmes.

The degree project forms an important introduction to the labour market for students. It is quite common that students begin working at the companies where they carried out their degree project. In the National Degree Project Pool students can find proposals from companies and organisations from all over the country. Students can create their own search profile and receive e-mails when projects match their profile. Degree project proposals are dominated by the computer and systems science areas with around half of the proposals received, followed by electronics/IT in second place and design/product development in third.
EDUCATION FOR PROFESSIONALS IN WORKING LIFE

The KTH society liaison task includes providing education for those already working. KTH offers courses for professionals within a number of different areas. Courses are aimed at providing broader or deeper competence for, primarily, engineers and architects, but also targets other groups who need competence-enhancement activities such as teachers.

KTH supplies courses and course packages both within its ordinary, grant-financed operations and in the form of specially designed commissioned courses. These courses are planned so that it is possible to combine them with a career. Several of them are distance courses which enables people living in other parts of the country to join. Certain courses are given in English. Examples of areas in specially high demand include programming, IT security, real estate economics, logistics, architecture and environmental engineering.

In 2010 a special project was started up on professional education for professionals. A selection of courses was marketed during the autumn under the heading Add to your Career with Extra Credits. At the same time long-term activities aimed at building up a range of commissioned education courses, purpose-designed for business/industry needs, were initiated.

ALUMNI

In the future, universities will be judged by how well they succeed in retaining the commitment of their students after graduation.

The Alumni Network helps to strengthen the KTH brand by working actively to ensure that KTH alumni are good examples and ambassadors for the recruitment of new students. This also provides alumni with the opportunity of maintaining contact with each other, brings opportunities to network with companies and to maintain a lifelong relationship with KTH. Network focus is on career-related activities, membership offers and support for both national and international reunions.

In 2010 approximately 1,900 new members joined the Alumni Network. At the end of the year the network had 12,100 members, of whom 34 percent are women and 66 percent men. During the year the network arranged several events including career evenings in collaboration with companies who were looking to recruit working engineers from KTH, and Young Professionals which is an annual event for young working alumni. For the fifth consecutive year a reunion was also organised in China in connection with the Shanghai EXPO 2010, where KTH cooperated with Stockholm Business Region.
Staff

Staff Structure

The number of employees reported is the average number measured on a monthly basis over the course of 2010, unless otherwise stated.

The average number of employees in 2010 was 4,276 as compared to 3,900 in 2009 and 3,730 in 2008. When recalculated as full-time equivalent employees this shows an increase of 222 to 3,157 for 2010 as compared to 2,935 in 2009. In 2010 women, as in 2009, made up 34 percent of KTH employees.

Teachers and Researchers

The number of teachers (professors, visiting professors, adjunct professors, assistant professors, associate professors, lecturers plus visiting lecturers) has increased on the previous year by 22 full-time equivalent positions to 799 as compared to 777 in 2009. The increase lies within the categories professor, assistant professor, lecturers and visiting lecturers. The proportion of women has also increased somewhat to 18% for 2010 from 17% in 2009.

The number of researchers and research engineers and postdocs, i.e. employees who primarily work with research and research support operations, has increased from 462 to 512 full-time equivalents (147 women and 365 men) in 2010 from 132 women and 330 men in 2009. Postdoc employment is a fixed-contract position of a maximum of two years that was introduced in 2009. There were 52 postdoc full-time equivalents in 2010 as compared to 22 in 2009. Consequently this type of position is responsible for the largest part of the increase in this group.

Professors

The number of full-time equivalents in this group (professors, visiting professors and adjunct professors) is 287 (29 women and 258 men). The number of professors has increased by five full-time equivalents, to 255 in 2010 (21 women and 234 men). This brings the gender structure to eight percent women which is the same proportion as in 2009 when there were 250 professors (20 women and 230 men). The number of visiting professors has not changed in 2010; 23 full-time equivalents (8 women and 15 men) with a gender structure of 35 percent women.

At the end of 2010, the number of adjunct professors, i.e. professors whose primary operations are located outside the university amounted to 38 (five women and 33 men), an increase on 2009 when the figures were 32 (one women and 31 men). During the year 12 individuals (four women and eight men) have been recruited as adjunct professors, as compared to 2009 when nine individuals (one woman and eight men) were recruited. Employment consists of a minimum of 20 percent and a maximum of 50 percent of a full time position. All adjunct professors are employed by KTH. Certain of them receive no salary from KTH as they are paid by their primary employer. This group amounts to 20 people and approximately four full-time equivalents.

In 2020, six individuals have been appointed as affiliate professors (one women and five men) and one affiliate professor has left. Consequently at the end of the year there were 25 affiliate professors (two women and 23 men) at KTH. The aim of this title is primarily to strengthen KTH’s international contact network by bringing eminent foreign research colleagues closer to the university. Affiliation does not mean any financial undertaking on behalf of KTH and there is no employer/employee relationship. Consequently affiliate professors are not included in the number of employees and full-time equivalents reported in the Annual Report.

Associate Professors, Assistant Professors and Lecturers

The number of associate professors has increased somewhat to 207 full-time equivalents (39 women and 168 men) in 2010 from 206 (32 women and 174 men) in 2009. The group consisted of 19 percent women in 2010 as compared to 15 percent in 2009.

The number of assistant professors has decreased to 43 full-time equivalents (nine women and 34 men) from 46 (ten women and 36 men) in 2009. The proportion of women in this category has therefore changed only marginally and now amounts to 21 percent. During the year nine new assistant professors have been recruited (one women and eight men). The number of assistant associate professors has increased to 51 (12 women and 39 men).
from 43 (14 women and 29 men) in 2009. During the year 30 assistant associate professors were recruited (five women and 25 men). The proportion of women in these two groups is now 22 percent which is a substantial reduction since 2009 when there were 27 percent women. The number of lecturers including guest teachers has increased to 211 full-time equivalents (52 women and 159 men) in 2010 from 205 (49 women and 156 men) in 2009. The proportion of women in this category is 25 percent.

**Doctoral students**

Doctoral students in funded positions or with grants have increased on last year to 869 full-time equivalents (244 women and 625 men) from 771 full-time equivalents (199 women and 572 men) in 2009. Of this group, 91 students are grant-financed. Women made up 28 percent of this group in 2010.

**Technical and administrative staff**

There are now 858 full-time equivalent technical and administrative staff (506 women and 352 men), including library employees, an increase of full-time equivalents as compared to 817 (483 women and 334 men) in 2009, consequently 59 percent of this group were women in 2010.

**Gender structure at KTH**

The number of newly-recruited female professors and associate professors is, generally speaking, unchanged from 2009. The increase corresponds to approximately one full-time equivalent. The assistant professor group has approximately the same number of newly-employed women in 2010 as in 2009. As KTH has employed considerably more assistant professors in 2010 in comparison to 2009, the proportion of women has thus fallen. KTH intends to analyse this issue and examine if there is a discernable pattern evident that in some manner puts women at a disadvantage during the KTH recruitment procedure. KTH also intends to examine whether the new promotion procedures put in place in 1999 have affected women’s opportunities to advance within the academic employment structure.

This is also covered in a report entitled His Excellency: on the billion kronor investment in strong research environments that the Gender Equality Delegation published in 2010 which shows that the research investments of the last decade that concentrated on excellence and strong research environments have exerted negative effects on gender equality.

The proportion of women has increased among doctoral students by a little more than two percentage points to the amount of 45 full-time equivalents. This increase strengthens the preconditions for more women to make careers within the technical faculty.

### Figure 13

**Age Structure of Lecturers**

<table>
<thead>
<tr>
<th>Age category</th>
<th>29</th>
<th>30–39</th>
<th>40–49</th>
<th>50–59</th>
<th>60–64</th>
<th>65–</th>
<th>Total</th>
</tr>
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<td>Professor</td>
<td>9</td>
<td>101</td>
<td>88</td>
<td>57</td>
<td>32</td>
<td>287</td>
<td></td>
</tr>
<tr>
<td>Associate professor</td>
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<td>195</td>
<td>135</td>
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This is also covered in a report entitled His Excellency: on the billion kronor investment in strong research environments that the Gender Equality Delegation published in 2010 which shows that the research investments of the last decade that concentrated on excellence and strong research environments have exerted negative effects on gender equality.
Premises

KTH PREMISES
At the end of 2010, KTH had at its disposal approximately 231,000 square meters of premises, a marginal reduction as compared to the end of the previous year.

In 2010, as a result of the university’s expansion over the last few years, space needs became pressing. There is an urgent need for more premises, especially in the central campus and in Huddinge. The Huddinge situation is related to the expansion within the medical engineering field which has been developed in close cooperation with KI and Karolinska Hospital.

Consequently the proportion of vacant or unutilised premises continues to decrease and at the end of the year amounted to around one percent of rental space as compared to almost eight percent five years ago. In order to make room for continuous renovation and change of purpose of premises, this figure is far too low. A more reasonable proportion of available premises should lie at around three percent.

DEVELOPMENTS ON KTH CAMPUS
As a result of the current expansion, especially on the research side, several projects concerning premises have been initiated. For example Akademiska Hus has acquired the Red Cross Hospital on behalf of KTH. This old hospital building will be extensively but carefully renovated in 2011 and it is estimated that the spring of 2012 will see KTH management and administration moving in to these purpose-designed administration premises. In addition, several remodelling projects were initiated in 2009 on the KTH Campus which will be completed at the beginning of 2011. There will be more such projects starting in the spring of 2011. Furthermore, the planning of the new building for the School of Architecture will be resumed after an interruption.

The results of the new construction and remodelling projects will hopefully mean that KTH will be well-equipped as far as premises are concerned over the next few years.

STRATEGIC PLAN – HOUSING
In 2009, KTH presented jointly with its primary landlord Akademiska Hus, a Strategic Plan for KTH Campus under the heading “An inner city campus close to nature”. This plan brought up the idea of establishing student and researcher housing on campus. A special Strategic Plan – Housing 2009 – has consequently been developed.

Based on this plan, KTH and Akademiska Hus have identified a number of possible housing sites and as the first project proposes the concept of a container/module building with a green profile on campus. An application for planning permission has been submitted and a contract for the development of a specific plan has been signed. Politicians and officials at Stockholm City Hall are positive to this proposal and a decision concerning a new plan for the area concerned will hopefully be taken in September 2011. Planning documents for the first construction project will be submitted at the beginning of May 2011 in a parallel process with ongoing planning. If this schedule holds good then the container building should be ready for tenants at the end of 2011.
Finances

FINANCIAL OUTCOME AND CHANGE IN CAPITAL
The financial outcome this year is, as expected, high and at the same level as last year. It reflects substantial expansion as concerns both student numbers and study performance as well as research grants and external financing. In order to respond to this expansion, KTH has been working during the year with the recruitment of qualified teachers and researchers. These activities will continue in 2011.

Total KTH turnover has increased by 9.5 percent using operational revenues, including grants for financing of transfers, as a measurement.

Closing balance on the capital side within research and doctoral studies forms 17 percent of turnover. First and second level educational programmes have also built up a large amount of capital which forms almost 9 percent of turnover. Totally capital forms 13.5 percent of turnover.

In addition to its considerable amounts of capital, KTH also has large scale claims and advances. Over the next few years KTH plans to continue the recruitment of qualified staff and to make substantial investments in assets. The advantage of a relatively large financial capital is to be able to even out the financial outcome variations of individual years which provides room to manoeuvre and to include desirable strategic inputs. This is especially important to KTH whose level of external financing of operations is high.

REVENUES
Operational revenues increased by almost nine percent and are now SEK 3,480 million. Revenues from the first level (undergraduate) educational programmes provide, as previously, 35 percent of total revenues.

Education
First level educational programmes have increased their revenues by 8 percent to SEK 1,221 million. Revenues from grants for education also increased by 8 percent to SEK 1,114 million. KTH has exceeded its ceiling amount by SEK 46.6 million and has consequently utilised the remaining part of its grant savings of SEK 42 million. The substantial positive financial outcome from first level educational programmes is linked to the increased number of students. The introduction of fees for students from outside EU/EEA brings considerable levels of uncertainty. KTH can see that applications from these countries have decreased radically but it is too early to say how this will affect student numbers in the long term.

Research and doctoral studies
Research and doctoral studies increased their revenues by 11 percent to SEK 2,151 million. Revenues from grants for research and doctoral studies increased by 17 percent to SEK 878 million which is an extremely substantial increase in comparison to the previous year. This increase is primarily dependent on the government allocation of strategic research funding which in 2010 amounted to SEK 82.2 million.

Figure 14

EARNINGS AND CAPITAL TREND
MSEK

<table>
<thead>
<tr>
<th>Year</th>
<th>Changes to capital</th>
<th>Government agency capital</th>
<th>Unutilised grants</th>
<th>Receivables</th>
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<tbody>
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</table>

Figure 15

profit /loss 2010 2009
Revenues 3,480 3,195
Costs 3,286 2,998
Profit/loss 193 197
Profit/loss subsidiaries 0 1
Revenues for transfers 194 161
Grants issued (costs for transfers) 194 161
PROFIT/LOSS 194 196

Figure 16

CAPITAL DEVELOPMENT

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<th></th>
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<td>First and second level studies</td>
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Figure 17

earnings and capital trend
MSEK

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<th>Changes to capital</th>
<th>Government agency capital</th>
<th>Unutilised grants</th>
<th>Receivables</th>
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Figure 18

Profit/loss 2010 2009
Revenues 3,480 3,195
Costs 3,286 2,998
Profit/loss 193 197
Profit/loss subsidiaries 0 1
Revenues for transfers 194 161
Grants issued (costs for transfers) 194 161
PROFIT/LOSS 194 196

Figure 19

changes to capital

<table>
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<th>Year</th>
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Figure 20

earnings and capital trend
MSEK

<table>
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<th>Year</th>
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<th>Receivables</th>
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</table>
External grant revenues have increased by almost seven percent to SEK 1,175 million. The largest grants coming from the Swedish Research Council, EU, Vinnova, Wallenberg Foundations and the Swedish Energy Agency (STEM). The Foundation for Strategic Research, which had reduced its financial support over a number of years, has now once again increased its contributions considerably since last year.

**FINANCES**

**Figure 18**
**FIELD OF ACTIVITY 2010 (2009)**
Total: 3,480 (3,195) MSEK

- Commissioned research 2.6 % (3.2 %)
- Education, first and second level 35.1 % (35.4 %)
- Research and doctoral studies 61.8 % (60.5 %)
- Commissioned education 0.5 % (0.9 %)

**Figure 19**
**SOURCES OF INCOME 2010 (2009)**
Total: 3,480 (3,195) MSEK

- Government grants for education, first and second level 32 % (32.3 %)
- Other private sources/companies 12.9 % (14.3 %)
- Strategic foundations 2.1 % (1.9 %)
- Other government agencies 14.6 % (15.2 %)
- Research Council 8 % (7.6 %)
- Government grants for research and doctoral studies 25.2 % (23.4 %)
- EU 5.2 % (5.3 %)

**Figure 20**
**COSTS 2010 (2009)**
Total: 3,286 (2,998) MSEK

- Depreciation 4.5 % (4.5 %)
- Premises 16.5 % (18.2 %)
- Other operating cost 18.2 % (16.1 %)
- Financial cost 0.1 % (0.1 %)

**COSTS**

Operating costs have increased by almost ten percent and amounted to SEK 3,286 million.

Increases are primarily attributable to payroll costs, running costs and depreciation which taken together reflect the expansion phase that KTH is enjoying just now.

The staff has expanded by 222 full-time equivalent positions with the greatest increase in the group of doctoral students which is responsible for 44 percent of this number.

Running costs have increased substantially. Purchasing of goods shows the largest increase (SEK 64 million) and purchase of services (SEK 49 million). Increased purchase of goods is in line with increased size of operations plus the changes that KTH made as concerns an increase of the ceiling amount for purchase of what was previously entered into the books as fixed assets. Purchase of services for education and research reflect the anxiety felt when employing permanent teachers considering the imminent introduction of university fees and the anticipated reduction in student numbers in certain subjects. This increase also reflects the difficulties encountered in rapidly recruiting permanent staff for research operations.

Costs for premises show a slight reduction but it must be stated here that KTH is currently operating in overcrowded conditions and that the reduction is also dependent on a temporary reduction of consumer price index (October Index) between 2008 and 2009 which has exerted an effect on rental costs in 2010.
KTH currently manages 113 private foundations with legal requirements for administration by KTH. These foundations have been formed based on various donations to KTH over the course of its history. The individual foundations vary widely. The University Board is the Board of each individual foundation but has established a special Management Board for this purpose. The Management Board is responsible for ensuring that the foundations’ assets are used as per original intention and that KTH’s Investment Policy is complied with. Reporting to the Management Board is a Scholarship Council whose task is to distribute grants financed by capital earnings.

PURPOSE MANAGEMENT
Each foundation has a purpose stated in its donation documentation. The largest group of KTH foundations, around 50 of them, is aimed at providing scholarships for students within first and second level education. In 2010, decisions were taken to distribute approximately 343 scholarships worth a total of SEK 4.1 million from these foundations. MSEK 2.0 of this sum comes from the largest foundation managed by KTH, the Henrik Göransson Sandvik Scholarship Fund which has a capital of SEK 160.5 million. The capital owned by this foundation is to be primarily invested in stocks and shares connected to Sandvik AB.

Twenty or so foundations provide travel grants for lecturers, researchers and research students irrespective of subject. Other foundations contribute to operations within a certain area of KTH research. In 2010 decisions were taken concerning approximately MSEK 8.4 for such operations at KTH.

The second largest foundation managed by KTH is the 1944 Donation Foundation that funds the annual KTH Great Prize which was worth SEK 1 million in 2010. The donor, who wished to remain anonymous, stipulated that the Prize be awarded to a Swedish citizen who, through ground-breaking discoveries, original applications or artistic achievement, has been of great importance to Sweden. The 2010 Great Prize was awarded to Professor Hans Rosling for his efforts to disseminate knowledge on health conditions in the world and his ability to inspire and create belief in the future.

CAPITAL MANAGEMENT
The capital is managed on a discretionary basis by external capital managers. Consequently they are entitled to change the investment of these funds within the framework of the Investment Policy for KTH Foundations. At the end of 2010, the total market value of the foundations amounted to SEK 636 million (SEK 542 million in 2009), distributed by foundation group as shown in Figure 21.

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<th>Size and Number of Foundations</th>
<th>MSEK</th>
<th>Number</th>
<th>Capital MSEK</th>
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<tr>
<td>Foundations, 1–5 MSEK</td>
<td>40</td>
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<td>Foundations, 5–15 MSEK</td>
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<td>161</td>
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<tr>
<td>Foundations, 15–161 MSEK</td>
<td>9</td>
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<td><strong>TOTAL</strong></td>
<td><strong>113</strong></td>
<td><strong>636</strong></td>
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## Profit and loss statement

**Thousand SEK**

### Operational revenues

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<td>Appropriations</td>
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<td>1,779,215</td>
<td>1,665,792</td>
<td>1,572,851</td>
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<td>Revenues from charges and other fees</td>
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<td>277,318</td>
<td>285,142(1)</td>
<td>279,647(1)</td>
<td>267,300(1)</td>
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<td>Grants</td>
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<td>1,129,804</td>
<td>1,088,837(1)</td>
<td>951,718(1)</td>
<td>908,344(1)</td>
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<td>Financial income</td>
<td>8,354</td>
<td>9,126</td>
<td>12,503</td>
<td>14,744</td>
<td>9,445</td>
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<td><strong>Total operational revenues</strong></td>
<td><strong>3,479,674</strong></td>
<td><strong>3,195,464</strong></td>
<td><strong>2,992,273</strong></td>
<td><strong>2,818,980</strong></td>
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### Operational costs

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<td>Staff</td>
<td>1,994,068</td>
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<td>1,716,617</td>
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<td>Cost for premises</td>
<td>540,793</td>
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<td>579,594(1)</td>
<td>549,189(1)</td>
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<td>126,952</td>
<td>114,912</td>
</tr>
<tr>
<td><strong>Total operational costs</strong></td>
<td><strong>3,286,213</strong></td>
<td><strong>2,998,496</strong></td>
<td><strong>2,937,043</strong></td>
<td><strong>2,807,069</strong></td>
<td><strong>2,709,378</strong></td>
</tr>
</tbody>
</table>

### Operational outcome

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational outcome</strong></td>
<td><strong>193,461</strong></td>
<td><strong>196,968</strong></td>
<td><strong>55,229</strong></td>
<td><strong>11,911</strong></td>
<td><strong>13,023</strong></td>
</tr>
</tbody>
</table>

### Outcome from shares of subsidiary companies and other interests

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers</td>
<td>278</td>
<td>-515</td>
<td>2,429</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>59,857</td>
<td>20,362</td>
<td>15,917</td>
<td>15,875</td>
<td>14,454</td>
</tr>
<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>86,171</td>
<td>94,507</td>
<td>95,787</td>
<td>78,803</td>
<td>57,514</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>47,917</td>
<td>45,883</td>
<td>44,541</td>
<td>24,522</td>
<td>35,198</td>
</tr>
<tr>
<td>Made contributions</td>
<td>193,945</td>
<td>160,753</td>
<td>156,245</td>
<td>118,700</td>
<td>107,166</td>
</tr>
<tr>
<td><strong>Outcome of transfers</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

### CHANGES TO CAPITAL

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES TO CAPITAL</strong></td>
<td><strong>193,740</strong></td>
<td><strong>196,452</strong></td>
<td><strong>57,658</strong></td>
<td><strong>11,923</strong></td>
<td><strong>13,037</strong></td>
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</tbody>
</table>

---

1) Adjustments have not been carried out for 2006-2008 concerning altered accounting principles for AlbaNova

---

### Undergraduate education

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>First and second level studies</th>
<th>Purchased courses</th>
<th>Commissioned courses</th>
<th>Research and doctoral studies</th>
<th>Commissioned research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriations</td>
<td>1,992,218</td>
<td>1,114,071</td>
<td>0</td>
<td>0</td>
<td>878,147</td>
<td>0</td>
</tr>
<tr>
<td>Revenues from charges and other fees</td>
<td>273,717</td>
<td>75,461</td>
<td>8,617</td>
<td>10,061</td>
<td>91,291</td>
<td>88,287</td>
</tr>
<tr>
<td>Grants</td>
<td>1,205,385</td>
<td>30,491</td>
<td>56</td>
<td>61</td>
<td>1,174,731</td>
<td>47</td>
</tr>
<tr>
<td>Financial income</td>
<td>8,354</td>
<td>939</td>
<td>4</td>
<td>8</td>
<td>6,554</td>
<td>848</td>
</tr>
<tr>
<td><strong>Total operational revenues</strong></td>
<td><strong>3,479,674</strong></td>
<td><strong>1,220,962</strong></td>
<td><strong>8,676</strong></td>
<td><strong>10,130</strong></td>
<td><strong>2,150,723</strong></td>
<td><strong>89,182</strong></td>
</tr>
</tbody>
</table>

### Operational costs

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>First and second level studies</th>
<th>Purchased courses</th>
<th>Commissioned courses</th>
<th>Research and doctoral studies</th>
<th>Commissioned research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>1,994,068</td>
<td>645,531</td>
<td>3,042</td>
<td>4,782</td>
<td>1,292,765</td>
<td>47,947</td>
</tr>
<tr>
<td>Cost for premises</td>
<td>540,793</td>
<td>266,742</td>
<td>864</td>
<td>888</td>
<td>257,540</td>
<td>14,760</td>
</tr>
<tr>
<td>Other operating costs</td>
<td>598,591</td>
<td>216,848</td>
<td>3,042</td>
<td>5,081</td>
<td>352,800</td>
<td>20,820</td>
</tr>
<tr>
<td>Financial costs</td>
<td>3,733</td>
<td>167</td>
<td>27</td>
<td>1</td>
<td>260</td>
<td>929</td>
</tr>
<tr>
<td>Depreciation</td>
<td>149,028</td>
<td>30,428</td>
<td>151</td>
<td>232</td>
<td>114</td>
<td>3,305</td>
</tr>
<tr>
<td><strong>Total operational costs</strong></td>
<td><strong>3,286,213</strong></td>
<td><strong>1,159,717</strong></td>
<td><strong>7,125</strong></td>
<td><strong>10,985</strong></td>
<td><strong>2,020,625</strong></td>
<td><strong>87,761</strong></td>
</tr>
</tbody>
</table>

### Operational outcome

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>First and second level studies</th>
<th>Purchased courses</th>
<th>Commissioned courses</th>
<th>Research and doctoral studies</th>
<th>Commissioned research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational outcome</strong></td>
<td><strong>193,461</strong></td>
<td><strong>61,246</strong></td>
<td><strong>1,551</strong></td>
<td><strong>-854</strong></td>
<td><strong>130,376</strong></td>
<td><strong>1,421</strong></td>
</tr>
</tbody>
</table>

---

### Outcome from shares of subsidiary companies and other interests

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers</td>
<td>278</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>59,857</td>
<td>7,277</td>
<td>0</td>
<td>0</td>
<td>52,580</td>
</tr>
<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>86,171</td>
<td>7,430</td>
<td>0</td>
<td>0</td>
<td>78,741</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>47,917</td>
<td>3,240</td>
<td>0</td>
<td>0</td>
<td>44,677</td>
</tr>
<tr>
<td>Made contributions</td>
<td>193,945</td>
<td>17,947</td>
<td>0</td>
<td>0</td>
<td>175,998</td>
</tr>
<tr>
<td><strong>Outcome of transfers</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

### CHANGES TO CAPITAL

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES TO CAPITAL</strong></td>
<td><strong>193,740</strong></td>
<td><strong>61,246</strong></td>
<td><strong>1,551</strong></td>
<td><strong>-854</strong></td>
<td><strong>130,376</strong></td>
</tr>
</tbody>
</table>
## Balance Sheet

### Thousand SEK

#### ASSETS

<table>
<thead>
<tr>
<th>Description</th>
<th>2010-12-31</th>
<th>2009-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intangible fixed assets</strong></td>
<td>10,503</td>
<td>14,919</td>
</tr>
<tr>
<td>Development costs brought forward</td>
<td>568</td>
<td>1,551</td>
</tr>
<tr>
<td>Rights and other intangible assets</td>
<td>9,935</td>
<td>13,368</td>
</tr>
<tr>
<td><strong>Tangible fixed assets</strong></td>
<td>499,707</td>
<td>455,307</td>
</tr>
<tr>
<td>Improvements to non-owned real estate</td>
<td>159,068</td>
<td>173,097</td>
</tr>
<tr>
<td>Machines, inventory items, installations etc</td>
<td>277,623</td>
<td>256,332</td>
</tr>
<tr>
<td>Construction in progress</td>
<td>58,204</td>
<td>24,778</td>
</tr>
<tr>
<td>Advances concerning tangible fixed assets</td>
<td>4,811</td>
<td>1,100</td>
</tr>
<tr>
<td><strong>Financial assets</strong></td>
<td>36,536</td>
<td>9,257</td>
</tr>
<tr>
<td>Shares in subsidiary companies</td>
<td>18,536</td>
<td>9,257</td>
</tr>
<tr>
<td><strong>Receivables</strong></td>
<td>135,569</td>
<td>98,777</td>
</tr>
<tr>
<td>Receivables - customers</td>
<td>46,998</td>
<td>35,730</td>
</tr>
<tr>
<td>Receivables – other government agencies</td>
<td>86,212</td>
<td>60,251</td>
</tr>
<tr>
<td>Other receivables</td>
<td>2,360</td>
<td>2,796</td>
</tr>
<tr>
<td><strong>Cut off items</strong></td>
<td>316,229</td>
<td>337,149</td>
</tr>
<tr>
<td>Pre-paid costs</td>
<td>118,118</td>
<td>115,226</td>
</tr>
<tr>
<td>Accrued grant revenues</td>
<td>189,918</td>
<td>214,373</td>
</tr>
<tr>
<td>Other accrued revenues</td>
<td>8,194</td>
<td>7,550</td>
</tr>
<tr>
<td><strong>Settlement with Government</strong></td>
<td>0</td>
<td>-42,034</td>
</tr>
<tr>
<td><strong>Cash and Bank</strong></td>
<td>1,396,841</td>
<td>1,116,709</td>
</tr>
<tr>
<td>Balance and interest bearing account at Swedish National Debt Office</td>
<td>1,257,516</td>
<td>1,026,056</td>
</tr>
<tr>
<td>Cash and bank</td>
<td>139,325</td>
<td>90,653</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>2,377,384</td>
<td>1,990,084</td>
</tr>
</tbody>
</table>

#### CAPITAL AND LIABILITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>2010-12-31</th>
<th>2009-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government Agency Capital</strong></td>
<td>494,990</td>
<td>301,250</td>
</tr>
<tr>
<td>Government capital</td>
<td>6,850</td>
<td>6,850</td>
</tr>
<tr>
<td>Outcome from shares of/in subsidiary companies and other interests</td>
<td>2,408</td>
<td>2,923</td>
</tr>
<tr>
<td>Changes to capital brought forward</td>
<td>291,993</td>
<td>95,025</td>
</tr>
<tr>
<td>Changes to capital according to profit and loss statement</td>
<td>193,740</td>
<td>196,452</td>
</tr>
<tr>
<td><strong>Provisions</strong></td>
<td>42,079</td>
<td>37,274(1)</td>
</tr>
<tr>
<td>Provisions for pensions and similar commitments</td>
<td>15,106</td>
<td>11,086</td>
</tr>
<tr>
<td>Other provisions</td>
<td>26,974</td>
<td>26,188(1)</td>
</tr>
<tr>
<td><strong>Liabilities etc</strong></td>
<td>718,283</td>
<td>637,956</td>
</tr>
<tr>
<td>Loans from Swedish National Debt Office</td>
<td>332,719</td>
<td>343,001</td>
</tr>
<tr>
<td>Accounts payable – other government agencies</td>
<td>76,378</td>
<td>57,487</td>
</tr>
<tr>
<td>Accounts payable – suppliers</td>
<td>106,766</td>
<td>80,038</td>
</tr>
<tr>
<td>Accounts payable – other</td>
<td>199,466</td>
<td>149,167</td>
</tr>
<tr>
<td>Deposit</td>
<td>2,954</td>
<td>3,116</td>
</tr>
<tr>
<td>Advances from commissioners and customers</td>
<td>0</td>
<td>5,147</td>
</tr>
<tr>
<td><strong>Cut-off items</strong></td>
<td>1,122,032</td>
<td>1,013,604(1)</td>
</tr>
<tr>
<td>Accrued costs</td>
<td>97,501</td>
<td>83,286(1)</td>
</tr>
<tr>
<td>Unutilised grants</td>
<td>1,016,886</td>
<td>920,611</td>
</tr>
<tr>
<td>Other prepaid revenues</td>
<td>7,646</td>
<td>9,707</td>
</tr>
<tr>
<td><strong>TOTAL CAPITAL AND LIABILITIES</strong></td>
<td>2,377,384</td>
<td>1,990,084</td>
</tr>
</tbody>
</table>

1) Adjustment of the 2009 comparison amount has been carried out.
Licentiate Theses

Licentiate degrees awarded during 2010

**BIOTECHNOLOGY**

Neiman, Mårtén
Tagging systems for sequencing large cohorts

Perumal, Sathya S R R
Spin-spin and spin-orbit coupling studies of small species and magnetic system

**ELECTRICAL ENGINEERING, ELECTRONICS AND PHOTONICS**

Electronic and Computer Systems
Garcia Iozano, Marianela
Semantic based Resource identification, Storage and Discovery in Distributed Systems

Yuan, Xiaolong
Wideband Sigma-Delta Modulators

Al-Shishawy, Ahmad
Enabling and Achieving Self Management for Large Scale Distributed Systems

Haseeb, Abdul
Interoperability infrastructure and incremental learning for unreliable heterogeneous communicating systems

Zhang, Zhi
Hierarchical Multi-Reader RFID Systems for Internet-of-Things

Electrical Systems
Stening, Alexander
On inter-bar Currents in Induction Motors with Cast Aluminium and Cast Copper Rotors

Chitroju, Rathna
Improved Performance Characteristics of Induction Machines with Non-Skewed Asymmetrical Rotor Slots

Grop, Henrik
Investigation of AC electrical machine stators with fractional conductor windings

Leelarui, Rajiroj
Coordination of protection system and VSC-HVDC to mitigate cascading failures

Electromagnetic Theory
Motevasselian, Alireza
On the Scattering Reduction of an Aircraft Wing Profile Enclosing an Antenna

**ENGINEERING AND BUSINESS MANAGEMENT**

Real Estate Economics
Delsenius, Sven-Erik
Byggherren och byggherrörelsens utveckling i svenskt bostadshyggeande, dret 1945–2005

**Philosophy**

Gustafsson, Johan
Essays on Value, Preference, and Freedom

**Production Engineering**

Témun, Attila
Light scattering - a tool for measurement of rapid displacement and surface appearance

**Maffei, Antonio**
Evolvable Production Systems: foundations for new business models

**Infrastructure**

Hu, Hongtao
Urban Local-coverage Mapping with High-resolution Spaceborne SAR Data

**Lindberg, Per Olov**
Aspects of Static Multi-Class Traffic Equilibria under Congestion Pricing

**Hullgren, Maria**
The Mortgage Rate Choice

**Muyingo, Henry**
Property Maintenance: Concepts and determinants

**Lundström, Mats**
Planning och händalr bebyggelseutveckling i ett energi- och klimatperspektiv

**Johnson Hamilton, Carl**
Regulating road user charging

**Fults, Kandice**
A Time Perspective on Gendered Travel Differences in Sweden

**Zhang, Qian**
Spatial-temporal Patterns of Urban Growth in Shanghai, China: Monitoring, Analysis and Simulation

**Mao, Bo**
Visualisation and Generalisation of 3D City Models

**Computer Systems for Design and Manufacturing**

Nilsson, Per
Conceptual Product Development in Small Corporations

**Communication Systems**

Ahsin, Tafteez ur Rehman
Link Reliability in Cooperative Relaying Using Network Coding

**Telecommunication**

Park, Pangun
Protocol Design for Control Applications using Wireless Sensor Networks

**Nader, Charles**
Enhancing Radio Frequency System Performance by Digital Signal Processing

**Medawar, Samer**
Modeling and Post-Correction of Pipeline Analog-Digital Converters

**Helgason, Olafur**
Opportunistic Content Distribution

**CHEMISTRY**

Chemistry
Bijelic, Goran
Interfacial Properties of Bottle Brush Polyelectrolytes and Lipids

Åkerstedt, Josefin
Tailored Reaction Media for the Synthesis of Subvalent Cluster Compounds

Liljeblad, Jonathan
Biomimetic Membranes: Molecular Structure and Stability Studies by Vibrational Sum Frequency Spectroscopy

Skedung, Lisa
Tactile Perception - Role of Physical Properties

**CHEMICAL ENGINEERING**

Industrial Ecology
Cai, Zhichang
From Energy Efficiency to Integrated Sustainable Urbanism in Residential Development in China

Cui, Qing
Tracing Copper from society to the aquatic environment: Model development and case studies in Stockholm

**Chemical Engineering**

Zhang, Shuo
Physical Properties and Crystallization of Theophylline Co-crystals

**Lejonmarck, Simon**
Electrically Induced Adhesive Debonding
Pulp and Paper Chemistry and Technology
Karlström, Katarina
Extended Impregnation Kraft Cooking of Softwood: Effects on reject, yield, pulping uniformity, and physical properties

Andersson, Rasmus
Evaluation of two hydrocyclone designs for pulp fractionation

Polymers and Technology
Westberg, Åsa
Refinement of a method for the study of emissions from building materials in contact with simulated environments

Nilsson, Fritjof
Mesoscale modelling of composites and semi-crystalline polymers

Guo, Baolin
Synthesis, Characterization and Molecular Architecture of Electroactive and Degradable Polymers

Blomfeldt, Thomas
Gluten Protein-Based Microcellular Foams and Composites: Development and Functional Properties

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Sakovich, Anna
The Einstein constraint equations on asymptotically hyperbolic manifolds

Häggblad, Jon
Boundary and Interface Conditions for Electromagnetic Wave Propagation using FDTD

Holm, Håkan
Coarse Graining Monte Carlo Methods for Wireless Channels and Stochastic Differential Equations

Chaudhry, Qasim Ali
Numerical Approximation of Reaction and Diffusion Systems in Complex Cell Geometry

Civil Engineering and Architecture
Hedberg, Yolanda
Environmental and health aspects of corrosion - importance of chemical speciation

Molnar, Marco
Energy Analysis in Buildings - A Complementary Approach to Energy Analysis

Engineering Physics
Physics
Runesson, Odd
Helium in CERMET Fuel - Binding Energies and Diffusion

Fokas, Andrei
Accelerator Driven Systems: Source Efficiency and Reactivity Determination

Wu, Juan
Measurements of Cosmic Ray Antiprotons with PAMELA calorimeter

Tesinsky, Milan
MCNPX Simulations for Neutron Cross Section Measurements

Physical Electrotechnology
Olofsson, Erik
Closed-loop control and identification of resistive shell magnetohydrodynamics for the reversed field pinch

Olsson, Jonas
Object-plasma interaction in the vicinity of Enceladus

Speech and Music Communication
Englund, Daniel
Accounting for individual Speaker Properties in Automatic Speech Recognition

Enflo, Laura
Alternative Measures of Phonation: Collission Threshold Pressure and Electroglottographic Spectral Tilt Extra-Perception of Swedish Accents

Theoretical Physics
Andersson, Andreas
Simulations of thermoelectric transport in granular superconductors

Melbø, Henrik
Astrophysical and Collider Signatures of Extra Dimensions

Materials Science
Corrosion Science
Lindell, David
Characterisation and picking behaviour of oxides formed during production annealing of stainless steels

Hedberg, Yolanda
Environmental and health aspects of corrosion - importance of chemical speciation

Materials Chemistry
Vogt, Carmen
Engineered core - shell nanoparticles for biomedical applications

ENGINEERING MECHANICS
Energy Technology
Khatiwada, Dilip
Assessing the sustainability of bioethanol production in Nepal

Sugunan, Abhilash
Photochemical and Photoelectric Applications of II-VI Semiconductor Nanomaterials

Wang, Xiaodi
Ionic Conducting Composite as Electrolyte for Low Temperature Solid Oxide Fuel Cells

Ma, Ying
Ceria-based Nanocomposite Electrolyte for Low-Temperature Solid Oxide Fuel cells

Materials Science
Wessman, Sten
Application of Computational Thermodynamics to Microstructure and Properties of Stainless Steels

Zhang, Hualei
Elastic Properties of Ferromagnetic BCC Fe Alloys from First Principles Theory

Fang, Mei
3D Magnetic Photonic Crystals: Synthesis and Characterization

Bumaliriru Muwanguzi, Abraham Judah
Characterisation of Muko iron Ore (Uganda) for the Different Routes of Iron Production

Memarzadeh, Mousa
A Study of EAF Austenitic and Duplex Stainless Steelmaking Slag Characteristics

Memon, Arash
A Study on the Submerged Entry Nozzles (SEN) respecting clogging and decarburization

Kasimagwa, Ismail
A Study of Slag Corrosion of Oxides and Oxide-Carbon Refractories during Steel Refining

Kantarelis, Efthymios
Thermochemical Treatment of Electric and Electronic Waste for Energy Recovery

Wilson, Lugano
Biomass Energy Systems and Resources in Tropical Tanzania

Applied Materials Technology
Randelius, Mats
Influence of microstructure on fatigue and ductility properties of tool steels

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Randelius, Mats
Influence of microstructure on fatigue and ductility properties of tool steels
Gong, Shengjie  
An Experimental Study on the Dynamics of Thin Liquid Films on Heater Surfaces

Mayoara Jimenez, Maria Angelica  
Development and Validation of a Numerical Tool for the Aeromechanical Design of Turbomachinery

Gajev, Ivan  
Sensitivity and Uncertainty Analysis of BWR Stability

Favre, Tristan  
Numerical Investigation of Unsteady Crosswind Aerodynamics for Ground Vehicles

Seeckt, Kolja  
Conceptual design and investigation of hydrogen-fueled regional freighter aircraft

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Bremberg, Daniel  
Automatic Mixed-Mode Crack Propagation Computation using a combined Hexahedral/Tetrahedral-Approach

Murtada, Sae-Il  
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Dahlgren, Carl  
Modeling of the mechanical behavior of interfaces by using strain gradient plasticity

Linares Arregui, Irene  
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Dersjö, Tomas  
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