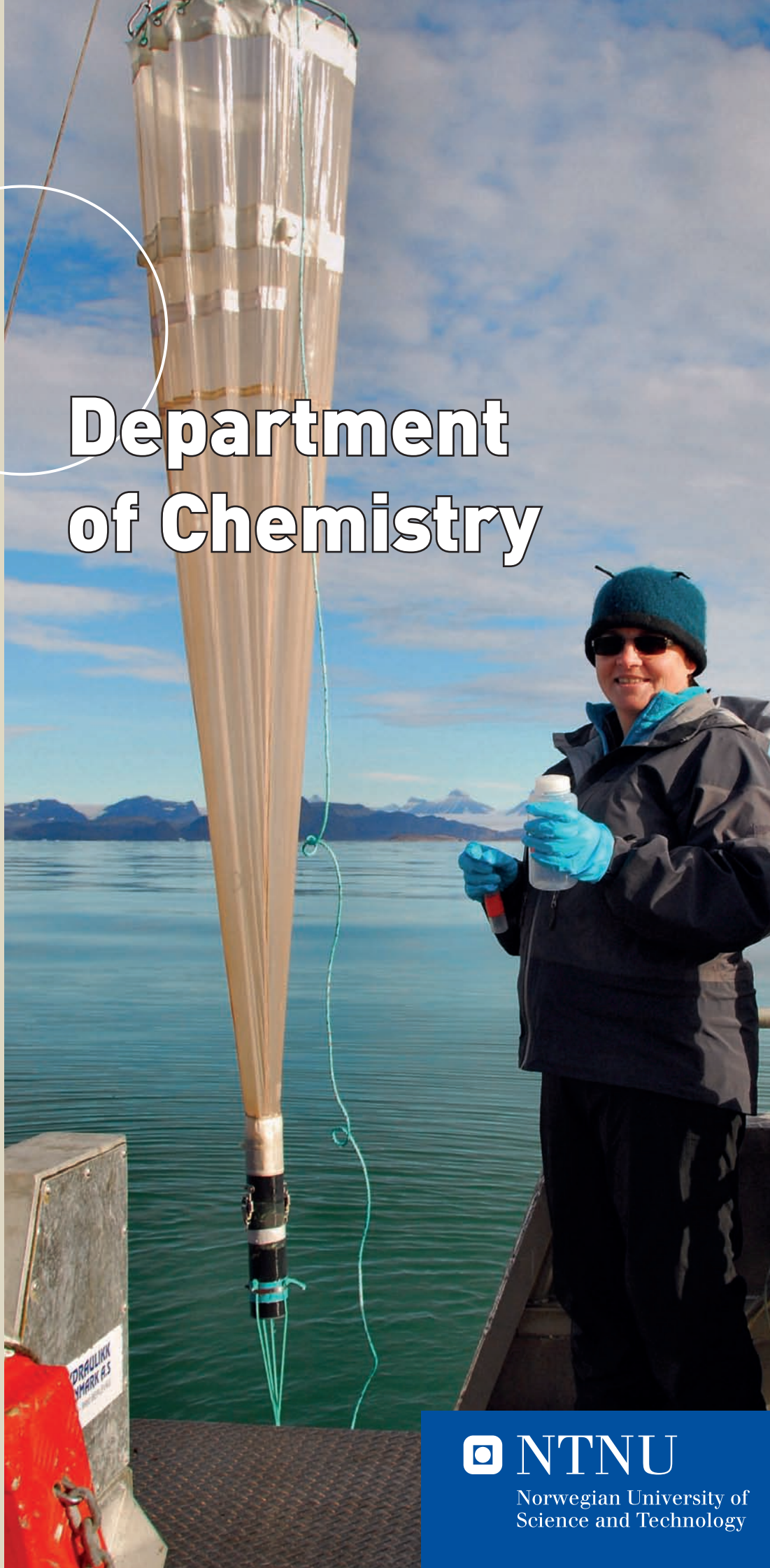


Annual Report 2011

Department of Chemistry



 NTNU

Norwegian University of
Science and Technology

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COVER PAGE

Professor Torunn Berg trawling for plant algaea in the sea in Kongsfjorden at Svalbard.

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Foreword

The State of the Department of chemistry 2011

In 2011 the Department of Chemistry is, for the first time, co-located in one building. Many efforts in the past to unite the Department finally came to a conclusion in 2011. Investments in the range of 15 million NOK ensured that the new laboratories were improved to a standard required for safe handling of chemicals and up to date experimental requirements. The final culmination was a smooth transfer of the organic chemistry group from the Chemistry Building 3 to offices and new laboratories in the Science Building. This marked the end of the extraordinary contribution by many dedicated persons in the Department, making this transfer both smooth and efficient. The result is that the Department now has very good laboratory facilities for all the activities. Although the new laboratories are not spacious at time being, this will be solved when Department of Biotechnology moves out of adjacent laboratories in a couple of years.

In 2009, the Department of Chemistry, among others, was subject to an external review by the Research Council of Norway (Kjemievalueringen 2009). As a follow up, the Research Council announced an Institution-based Strategic Project (ISP) competitive call. In cooperation with Department of Chemical Engineering and Department of Materials Science and Engineering, the Department was granted an ISP within computational chemistry: "From Molecules to Process Applications" with Signe Kjelstrup as project manager. The project joins both theoretical and experimental groups in an effort to further strengthen the overall scientific quality of this important field.

The Department is also involved in many other exciting research projects and both the students and the PhD candidates contribute to enhance the overall scientific knowledge and quality of the work. Some of these activities are presented in this annual report.

Health, Safety and Environment (HSE) has continued to receive growing attention and several milestones were achieved in 2011. One was the moving of the organic group from Chemistry Building 3 to the Science Building, which significantly improved the standard of the laboratories compared to the abandoned laboratories in Chemistry Building 3. Also, the disposal of many old chemicals, both from the local storages in the laboratories and from the chemical storage room, contributed to improved overall chemical safety. Further, restrictions on the access to laboratories and chemicals, as well as improved routines regarding safety data sheets in the

laboratories, were introduced. As a recognition of her contributions to improve the working conditions, the HSE coordinator at the Department, Nina Klausen, received the NTNU HSE Award at the annual NTNU party on 11.11.11. This is not only a recognition of the dedication of Nina, but also the many others at the Department who have contributed to raise the safety focus at the Department. These achievements were also recognized by the NTNU board when they visited the Department in November 2011.

Among other achievements at the Department, Gøril Aasen Slinde received first prize in the competition between students in technology and natural sciences arranged by Tekna and Zero. She presented her work at the ZERO conference in November. Her contribution was based on her thesis work on CO₂ storage. Syverin Lierhagen got the overall best results in a Nordic ring test on brines.

The Department seminar was this year focusing on developing a joint strategy for the whole Department. Several challenges still need to be addressed in the coming years. One is the teaching load on the academic staff which needs to be reduced to make room for more research. The Department has a relative low PhD production compared to other departments at the Faculty of Natural Sciences and Technology and more time and efforts should be used to establish research activities and funding for PhD projects.

As a result of the high teaching load on the professors, a process to reduce and streamline a number of courses was initiated in 2011. A good cooperation between the study coordinator and the scientific group leaders resulted in several improvements in the courses offered by the Department. This is considered as a good start to better adjust the number of courses to the teaching capacity.

The year 2011 marks a new turn for the Department and I am looking forward to see the Department grow and develop in the coming years.

*Arne Petter Ratvik
Acting Head of Department
(January- October 2011)*

Simulating CO₂ Separation in Molecular Sieve Membranes

The production of cheap membranes for CO₂ separation is of primary importance, for realization of carbon capture and sequestration technologies.¹ Nanoporous, fibrous, carbonaceous materials are promising such candidates from an experimental point of view. In order to make further progress to produce molecular sieve membranes, better knowledge of several issues are needed. Central for good membrane functionality are pore size, surface binding, surface wall transport, pore inlet control, carbon structure and – composition, see Fig.1. We propose to study all these variables using non-equilibrium molecular dynamics simulations (NEMD). This technique delivers first equilibrium information on adsorption energies (Molecular Dynamics or Monte Carlo simulations), but describes also the system in cases when the temperature, pressure and composition varies.

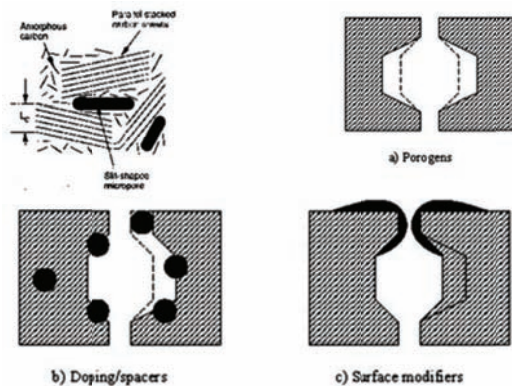


Fig.1 The real carbon sieve membrane (top) and its model pore representations (bottom)

Previous simulation investigated adsorption of hydrogen on graphite² and found that the pore surface plays a surprising role, pointing to a possibility to create a mobile gas layer on top of a more bounded layer.

In order to compare with H₂ transport, this project aims to study conditions that favor CO₂ transport (see Fig.2 for an illustration of the simulation on graphite surface). Classical experimental Langmuir adsorption isotherms and membrane permeability measurements are not enough to quantify transport along such interfaces. Computer simulations offer controlled “experiments”. One factor can be studied alone, before combinations are made with others. In this manner the project aims to explain complex experimental results and assist in the production procedure of sieve membranes. The work will give new understanding of the importance of membrane boundary conditions for transport. Such membranes are currently being tested in industry by our partner in Chemical Engineering Dept.

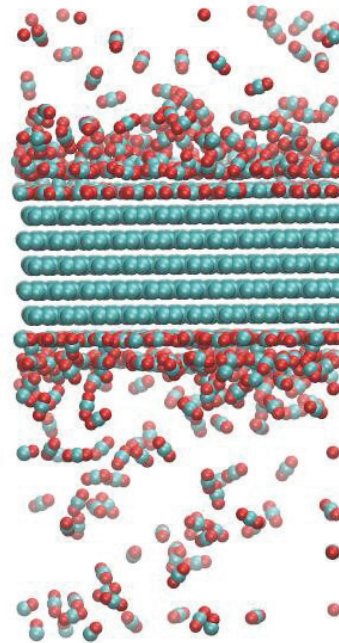


Fig. 2

We will do the simulations of CO₂ transport properties firstly in equilibrium condition on graphite surface and carbon membrane. Next we will apply density and temperature gradients in non-equilibrium dynamics and study transport of pure CO₂ and mixture of CO₂/H₂.

References:

1. He, X., J. A. Lie, E. Sheridan, M.-B. Hägg, Energy Procedia 1 (2009) 261
2. Simon, J.M, Haas, O.E., Kjelstrup, S., J. Phys. Chem. C, 114 (2010) 10212

Thuat T. Trinh

The Chemistry Trail in the international year of chemistry



Experiments with liquid nitrogen. © E. S. Midthun

During one week in September, 2011 320 children and 28 teachers visited the Department of Chemistry at NTNU. Between 9.30 a.m. and 2.00 p.m. the pupils were escorted from point to point in laboratories and seminar rooms of the Natural Science Building at Gløshaugen. The programme was directed at 7th graders and the experiments adapted to their curriculum; thus the pupils could have fun and yet learn relevant chemistry. We wanted the students to get their own, hands-on

experiences in chemistry; therefore they conducted most of the experiments themselves. Amongst other things, the children tested stones for iron, "smoked" cigarettes through cotton using a water aspirator, experimented with dry ice and liquid nitrogen, watched colour reactions and experienced heat exchange in chemical reactions. In some of the experiments the students encountered small, portable laboratories which have been developed for schools in South Africa.

The 316 who filled in an evaluation form were very satisfied with the day at NTNU (score 5,7 of 6). Typically the pupils replied that it was fun and exciting and that the chemistry trail encouraged them to want to learn more science. Some even expressed that they would like to study or work at NTNU in the future!



Gas production and detection using small, portable laboratories. © E. S. Midthun

18 student assistants were employed during the chemistry trail 2011. They alternated between being responsible for conducting the experiments in one specific room, and taking a group of students from point to point. This year the chemistry trail was funded by the Rector's Office and Forum for Industrial Cooperation at the Faculty for Natural Sciences and Technology.



Children testing stones. © E. S. Midthun

Annette Lykknes, Lise Kvittingen and Trine Naalsund Andreassen

“The chemistry of colours” – Student Exhibition in the Natural Science Library

Since 2006, when the course RFEL3093/RFEL8093 (Episodes in the history of science) was launched as an option for students at master level at the Faculty of natural sciences and technology, students have from time to time prepared an exhibition for the Natural Science Library as part of their course work. Like the previous years, the students were encouraged to make use of the historical collections at Department of chemistry and Department of physics, which are well kept and contain gems of scientific instruments from 100 years of research and teaching at NTNU. This year's challenge was to prepare a historical exhibition connected to the International year of chemistry.

The students opted for “The chemistry of colours” as an overall theme. Through the exhibition, they aimed to shed light on the role played by the chemistry of colours in the history of chemistry and chemical industry. Topics explored and displayed included “The colour experiments of Robert Boyle”, “William Henry Perkin and the synthesis of mauve”, “Spectroscopy as a collaboration between chemistry and physics”, “Cobalt blue and the Blaafarveværket at Modum”, “Yellow pigments and the discovery of chemical elements” and “The Hunt for ‘the Green of Nature’ and Chromatography”.



Reconstructing the bench of Henry William Perkin?
© E.Raknes/A.Lykknes



Gas chromatography anno mid-1970s
© E.Raknes/A.Lykknes

The students made an effort to prepare an informative and at the same time aesthetically satisfying exhibition, shedding light on the chemistry of colours and its history from different perspectives. The students involved were Elisabeth Raknes Brekke, Kidane Fanta Gebremariam, Apostolos Gerontas, Fredrik Nestande Kirkemo, Vidar Sandstad og Erlend Grytli Tveten.

Annette Lykknes



The students responsible for the exhibition: Erlend Grytli Tveten (to the left), Elisabeth Raknes Brekke, Fredrik Nestande Kirkemo, Kidane Fanta Gebremariam and Apostolos Gerontas. Vidar Sandstad was not present. © E.Raknes/A.Lykknes

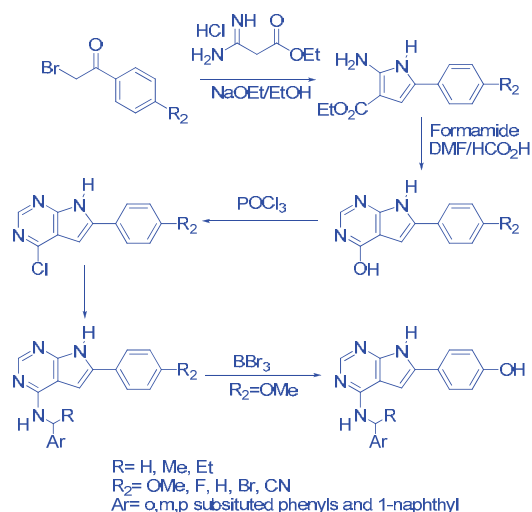
The Fluoro-organic group: Cancer treatment by inhibition of tyrosine kinases?

Introduction

Tyrosine kinases (TK) are enzymes that bind ATP and catalyse the transfer of γ -phosphate to tyrosine residues on proteins, thereby regulating their activity and function. A series of 4-*N*-substituted 6-aryl-7*H*-pyrrolo[2,3-*d*]pyrimidine-4-amines have been synthesised, characterised and tested for their *in vitro* EGFR (ErbB1) tyrosine kinase inhibitory activity.¹

Synthesis

The compounds were prepared by multistep organic synthesis. The main steps are outlined in Scheme 1.^{1,2}



Scheme 1. Synthetic route to the target compounds.

Twenty six derivatives were synthesised and characterised. Most of the compounds were chiral and produced as their (*R*)-enantiomers.

Biological testing

All the prepared compounds were tested for their ability to inhibit *in vitro* EGFR (ErbB1) tyrosine kinase activity. This was done as 10 point titration in duplicates (purchased from Invitrogen) Eight of the new compounds had IC₅₀ values in the range of 2.8-9.0 nM. Four of these have a fluorine atom positioned at sites otherwise potentially susceptible to oxidative metabolism. Percentage of inhibition plotted towards concentration of some inhibitors is shown in Figure 1.

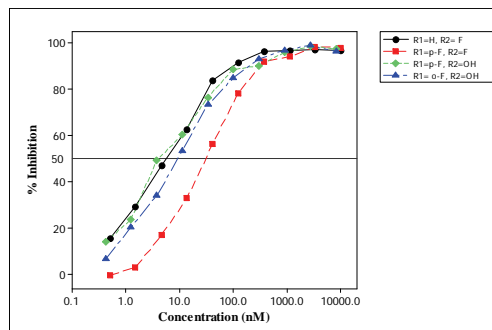


Figure 1. Percentage of inhibition plotted against concentration of the inhibitor compound.

The structure activity relationships identified in this study are summarised in Figure 2.

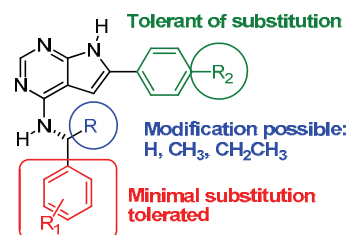


Figure 2. Effect of structural variation on EGFR-TK activity.

The cellular EGFR internalization response of selected compounds was evaluated using HeLa cells. Three fluorinated derivatives had a pronounced effect in inhibiting EGFR internalization (Figure 3).

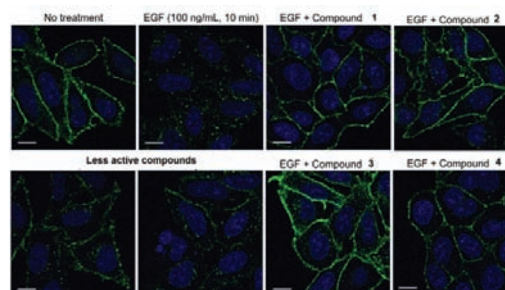
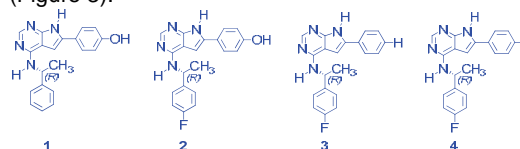


Figure 3. EGF induced EGFR internalization is potently inhibited by compound 1-4. Subconfluent HeLa cell cultures were starved for growth factors and left untreated or stimulated for 10 minutes with EGF (100 ng/mL, final concentration) in the absence or presence of the indicated compounds (500 nM, final concentration). Immunostained EGFR (green) and DNA (blue) was imaged using a Zeiss Axiovert 200 microscope with a 63X lens and a confocal detector. The images are representative for more than 500 randomly selected and manually inspected cells for each condition.

Docking

Preliminary docking studies revealed that compounds with IC_{50} values in the range of 3-86 nM, have similar conformations in the ATP binding site. Figure 4 shows the docked structure of compound 4, superimposed with the crystal structure complex of AEE-788.³ The *para* substituent on the 6-aryl group is directed towards the entrance of the binding pocket, explaining the minor changes in IC_{50} values upon variation of the R_2 -group, whereas there is limited space for the aromatic amines at C-4.

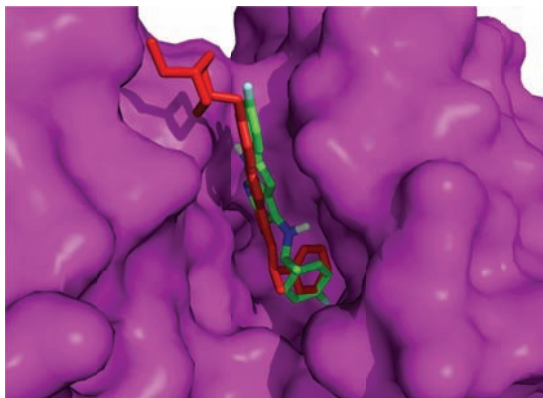


Figure 4. Compound (R)-4 (green) docked in the EGFR-TK ATP binding domain, co-crystallised AEE-788 (Figure 1) is shown in red.



Figure 5. PhD student Svein Jacob Kaspersen presenting his work at ESOC 2011, Crete.

Future work

Further biological evaluation of six of the identified compounds is underway. These studies include testing towards mutant enzymes and cells, kinase selectivity by testing towards a panel of kinases, metabolic studies, X-ray crystallography and modeling.

The group is also extending the search for new kinase inhibitors by organic diversity based synthesis. This work is aided by the dedicated work of our master and PhD students.

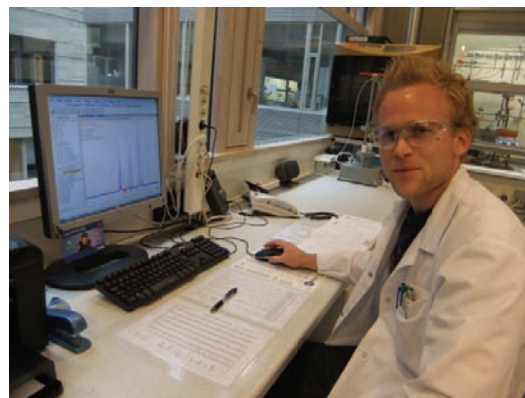


Figure 6. PhD student Steffen Bugge analysing his thienopyrimidines.



Figure 7. PhD student Svein Jacob Kaspersen supervising master student Jin Han and Synne Larsen.

Acknowledgement

Associate Professor Eirik Sundby (HIST) is part of the project. Professor Geir Bjørkøy (St. Olavs/HIST) and co-workers is acknowledged for taking on the cell studies. Anders Jahres foundation is acknowledged for financial support.

References

- [1] Kaspersen, S. J., Sørum, C., Willassen, V., Fuglseth, E., Kjøbli, E., Bjørkøy, G., Sundby, E., Hoff, B. H. Synthesis and *in vitro* EGFR (ErbB1) tyrosine kinase inhibitory activity of 4-*N*-substituted 6-aryl-7*H*-pyrrolo[2,3-*d*]pyrimidine-4-amines, *Eur. J. Med. Chem.* 46 (2011) 6002-6014.
- [2] Sørum, C., Simic, N., Sundby, E., Hoff, B. H. ¹H, ¹³C and ¹⁹F NMR data of *N*-substituted 6-(4-methoxyphenyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amines in DMSO-*d*₆, *Magn. Reson. Chem.* 48 (2010) 244-248.
- [3] Yun, C. H., Boggon, T. J., Li, Y., Woo, M. S., Greulich, H., Meyerson, M., Eck, M. J. Structures of lung cancer-derived EGFR mutants and inhibitor complexes: mechanism of activation and insights into differential inhibitor sensitivity, *Cancer Cell* 11 (2007) 217-227.

Bård Helge Hoff and Svein Jacob Kaspersen



Prof. Anne Fiksdahl; Synthetic organic chemistry – organometallic catalysis

Gold(I) catalysis

Gold(I) has been neglected by organic chemists for a long time.

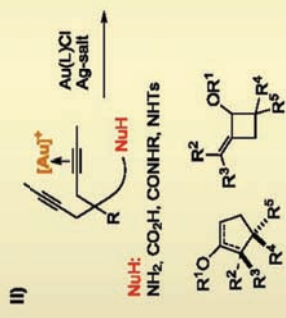
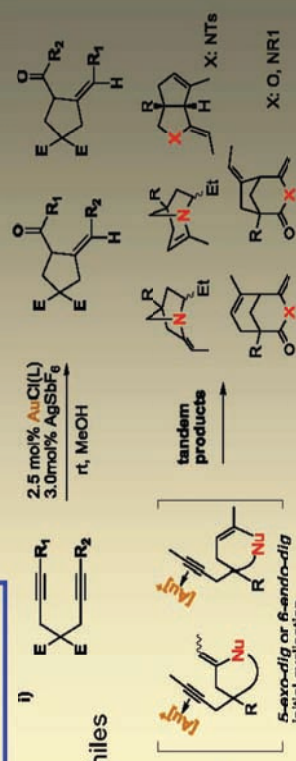
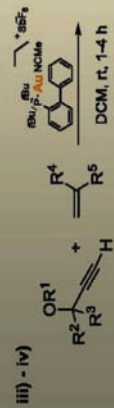
- noble metal; supposed to be catalytic inactive and expensive; hindered use / development of gold in chemistry
- **Au(I)** catalysis has last 5-8 years become one of the fastest growing research fields within chemistry

Aim of our project:

- develop new gold catalysed cyclisations
- apply gold(I)phosphine and NHC ligands
- mechanistical studies
- regiochemistry studies
- stereoselective cyclisations

We have developed **new Au(I) catalysed cyclisation reactions:**

- of 1,6-diynes, triggered by MeOH
- tandem cyclisations of 1,6-diynes triggered by internal N- and O-nucleophiles
- cyclopropanation reactions;
- cyclopentenylations reactions



Sperger, C. A.; Fiksdahl, A. *J. Org. Chem.* 75 (2010) 4542.
 Sperger, C. A.; Strand, L. H. S.; Fiksdahl, A. *Tetrahedron* 66 (2010) 7749.
 Sperger, C.A.; Fiksdahl, A. *Organic Letters* 11(2009) 2449.
 Sperger, C. A.; Tungen, J. E.; Fiksdahl, A. *Eur. J. Org. Chem.* (2011) 3719
 Iqbal, N.; Sperger, C.A.; Fiksdahl, A. in prep.

Summarized Au(I) catalysis; advantages / characteristics;

- high oxidation potential of **gold(I)** to **gold(III)**; allows reactions without **air** and **moisture** exclusion,
- **gold** coordinate preferentially to C-C multiple bonds, hence, tolerate the presence of heteroatoms (e.g. Nu, O, N)
- highly regio- / chemoselective
- relatively non-toxic

Prof. Anne Fiksdahl: Synthetic organic chemistry – organometallic catalysis

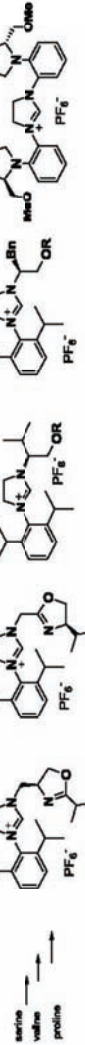
NEW CHIRAL N-Heterocyclic Carbenes LIGANDS (NHCs)

Aim of our project:

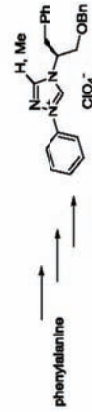
- develop new *chiral NHC ligands*
- investigate the new chiral NHC ligands' ability to *afford chiral induction* in a series of reactions

We have developed new *chiral/NHC ligands* from amino acids:

imidazolium salts:



triazolium salts:



to be tested in asymmetric reactions

Ragnhild B. Strand, Trygve Helgerud, T.; Solvang, T.; Sperger, C. A.; Fiksdahl, A. *Tetrahedron: Asymmetry* 22 (2011) 1994
 Strand, R. B.; Solvang, T.; Sperger, C. A. Fiksdahl, A. *in prep*

Research Projects

Cultural Heritage: Highlights

In 2011 the academic staff having interests within cultural heritage in chemistry and chemical education established a thematic research and teaching group to take care of this emerging field of activity. Those involved are:

Florinel Banica, Lise Kvittingen, Annette Lykknes, David Nicholson, Kidane Fanta Gebremariam, Apostolos Gerontas and Gebrekidan Mebrahthu Tesfamariam.

We have selected the following two highlights for 2011:

Especially two activities have fulfilled the necessary criterion of having attracted considerable publicity both within academia and with the wider public.

The Research Council of Norway's Special Performance in Oslo Concert Hall

As part of a varied programme, Annette Lykknes was honoured by being one of only three invited speakers to present highlights from Norwegian research. An audience of 1 400 that included researchers and politician of various colours listened to the presentation the subject of which was Ellen Gleditsch and the title of the talk: "**From Marie Curie's Protégé to Prophet in Her Own Country**".



Annette Lykknes at Oslo Concert Hall. © Sverre Jarild,

It was gratifying to our group to learn that Annette was widely complimented for her performance.

The group very much appreciated the publicity relating to **Kidane Fanta Gebremariam's PhD work on religious art in various Ethiopian churches**. An extensive description of this work, entitled "**Ethiopia's Hidden Treasures**" was published in the December issue of Gemini.



Kidane Fanta Gebremariam at the St. George church in Lalibela. It was carved out from the rocks in the 13th century.. © Lise Kvittingen

An integral part of Kidane s investigations includes experiments carried out at the Swiss-Norwegian Beamlines at the European Synchrotron Radiation Facility in Grenoble.

David G. Nicholson

Scientific Publications

Chemistry Education

Eggen, Per-Odd; Kvittingen, Lise; Lykknes, Annette; Wittje, Roland.

Reconstructing Iconic Experiments in Electrochemistry: Experiences from a History of Science Course. *Science & Education: Contributions from history, philosophy & sociology of science and mathematics* 2011

Lykknes, Annette.

From Fascinating Black Box to Science with Little Potential: Radioactivity in the Early 20th Century. I: Marie Sklodowska / Madame Curie. Stockholm: NobelMuseum 2011 ISBN 9789197733540. s.70-77

Lykknes, Annette.

Kjemihistoriekonferanse i Rostock: "Pathways of Knowledge". *Kjemi* 2011 (6) s. 8-9

Torvatn, Anne Charlotte; Lykknes, Annette.

Biografi eller fagartikkel, forsøksrapport eller logg? Om innhold, form og bruk i naturfagskriving på mellomtrinnet. I: På sporet av god skriveopplæring - ei bok for lærere i alle fag. Tapir Akademisk Forlag 2011 ISBN 978-82-519-2748-2. s. 207-224



Tern attacking our researchers at Ny Ålesund, Svalbard.
© T. Berg*

Environmental and Analytical Chemistry

Dahl, Cecilie; Søggaard, Anne Johanne; Tell, Grethe S; Flaten, Trond Peder; Krogh, Truls; Aamodt, Geir. Is the quality of drinking water a risk factor for forearm fractures?. *Norsk Epidemiologi* 2011 ;Volum 21. Suppl. 1 s. 34-34

Flaten, Trond Peder; Aaseth, Jan Olav.

Iron mobilization using chelation and phlebotomy. *Journal of Trace Elements in Medicine and Biology* 2011 ;Volum 26. Suppl. 1 s. 16-16

Harmens, H.; Norris, D.A.; Cooper, D.M.; Mills, G.; Steinnes, Eiliv; Kubin, E.; Thoni, L; Aboal, JR; Alber, R; Carballeira, A; Coskun, M; De Temmerman, L; Frolova, M; Gonzalez-Miqueo, L; Jeran, Z; Leblond, S; Liiv, S; Mankovska, B; Pesch, R; Poikolainen, J; Ruhling, A; Santamaria, JM; Simoneie, P; Schroder, W; Suchara, I; Yurukova, L; Zechmeister, HG.

Nitrogen concentrations in mosses indicate the spatial distribution of atmospheric nitrogen deposition in Norway. *Environmental Pollution* 2011 ;Volum 159. s. 2852-2860

Johnson, Christopher, C.; Demetriades, Alecos; Locutura, Juan; Ottesen, Rolf Tore.

Mapping the chemical environment of urban areas. John Wiley & Sons 2011 (ISBN 978-0-470-74724-7) 640 s.

Kaste, JM; Bostick, BC; Heimsath, AM; Steinnes, Eiliv; Friedland, AJ.

Using atmospheric fallout to date organic horizon layers and quantify metal dynamics during decomposition. *Geochimica et Cosmochimica Acta* 2011 ;Volum 75.(6) s. 1642-1661

Lourino-Cabana, Beatriz; Billon, Gabriel; Magnier, A; Prygiel, E; Baeyens, W; Prygiel, J; Mikkelsen, Øyvind; Ouddane, Baghdad.

Evidence of highly dynamic geochemical behaviour of zinc in the Deule river (northern France). *Journal of Environmental Monitoring* 2011 ;Volum 13.(8) s. 2124-2133

Mohsin, Muhammad Ali; Banica, Florinel Gabriel; Garaiova, Zuzana; Vargova, Veronika; Hianik, Tibor.

Complexation of cytochrome c with calixarenes incorporated into the lipid vesicles and supported membranes. *Bioelectrochemistry* 2011

Mohsin, Muhammad Ali; Banica, Florinel Gabriel; Oshima, Tatsuya; Hianik, Tibor.

Electrochemical impedance spectroscopy for assessing the recognition of cytochrome c by immobilized calixarenes. *Electroanalysis* 2011 ;Volum 23.(5) Suppl. 1 s. 1229-1235

Activities

Pawel, Daniela; Gebremariam, Kidane Fanta.
A multidisciplinary approach to conservation of Rock Art in Honnhammer, Norway. I: ICOM CC 16th Triennial Conference Lisbon 19-23 September 2011, Preprints. Almada: Criterio 2011 ISBN 9789899752207.

Rafiq, Muhammad Hamid; Jakobsen, Hugo Atle; Schmid, Rudolf; Hustad, Johan Einar.
Experimental studies and modeling of a fixed bed reactor for Fischer-Tropsch synthesis using biosyngas. Fuel processing technology 2011 ;Volum 92.(5) s. 893-907

Roos, Per M.; Lierhagen, Syverin; Flaten, Trond Peder; Syversen, Tore; Bergström, Jakob; Vesterberg, Olof; Nordberg, Monica.
Manganese in CSF and blood plasma from ALS patients. Journal of Trace Elements in Medicine and Biology 2011 ;Volum 26. Suppl. 1 s. 31-31

Schuster, Jasmin K; Gioia, Rosalinda; Moeckel, Claudia; Agarwal, Tripti; Bucheli, Thomas D; Breivik, Knut; Steinnes, Eiliv; Jones, Kevin C.
Has the Burden and Distribution of PCBs and PBDEs Changed in European Background Soils between 1998 and 2008? Implications for Sources and Processes. Environmental Science and Technology 2011 ;Volum 45.(17) s. 7291-7297

Shtangeeva, I; Steinnes, Eiliv; Lierhagen, Syverin.
Macronutrients and trace elements in rye and wheat: Similarities and differences in uptake and relationships between elements. Environmental and Experimental Botany 2011 ;Volum 70.(2-3) s. 259-265

Simic, Anica; Mistic, S. Milicevic; Stojancov, S. Seskar; Ilic, G; Milosavljevic, B; Vujovic, M; Flaten, Trond Peder.
Fatal pesticides-related self-poisonings in the southeastern region of Serbia-Alarmingly increase in suicides calls for restrictions. Toxicology Letters 2011 ;Volum 205. s. S234-S234

Steen, Anne Orderdalen; Berg, Torunn; Dastoor, Ashu P.; Durnford, Dorothy, A.; Engelsens, Ola; Hole, Lars Robert; Aspö, Katrine.
Natural and anthropogenic atmospheric mercury in the European Arctic: a fractionation study. Atmospheric Chemistry And Physics 2011 ;Volum 11. s. 6273-6284

Steinnes, Eiliv.
Soils and human health. I: Sustaining soil productivity in response to global climate change. Wiley-Blackwell 2011 ISBN 978-0-470-95857-5. s. 79-86

Steinnes, Eiliv; Berg, Torunn; Uggerud, Hilde Thelle.
Three decades of atmospheric metal deposition in Norway as evident from analysis of moss samples. Science of the Total Environment 2011 ;Volum 412-413. s. 351-358



*Nest of Barnacle Goose at Svalbard. © T. Berg**

Steinnes, Eiliv; Berg, Torunn; Uggerud, Hilde Thelle; Pfaffhuber, Katrine, A.
Atmosfærisk nedfall av tungmetaller i Norge: Landsomfattende undersøkelse i 2010. Oslo: Klima- og forurensningsdirektoratet 2011 (ISBN 978-82-425-2456-0) 40 s.

Steinnes, Eiliv; Uggerud, Hilde Thelle; Pfaffhuber, Katrine, A.
Nedfall av tungmetaller rundt norske industrier studert ved analyse av mose: Undersøkelse i 2010. Oslo: Klima- og forurensningsdirektoratet 2011 (ISBN 978-82-425-2458-4) 75 s.

Svendsen, Monica Lian; Steinnes, Eiliv; Blom, Hans Andreas.
Partitioning of Zn, Cd, Pb, and Cu in organic-rich soil profiles in the vicinity of a zinc smelter. Chemical speciation and bioavailability 2011 ;Volum 23.(4) s. 189-200

Sæther, Ola Magne; Åberg, Göran; Steinnes, Eiliv.
Lead isotope distribution in podzolic soil profiles on different types of bedrock in a formerly glaciated terrain (Oslo, Norway). Applied Geochemistry 2011 ;Volum 26. s. 5245-5249

Sørmo, Eugen Gravningen; Ciesielski, Tomasz Maciej; Øverjordet, Ida Beathe; Lierhagen, Syverin; Eggen, Grethe Stavik; Berg, Torunn; Jenssen, Bjørn Munro.
Selenium Moderates Mercury Toxicity in Free-Ranging Freshwater Fish. Environmental Science and Technology 2011 ;Volum 45.(15) s. 6561-6566

Vikøren, Turid; Kristoffersen, Anja Bråthen; Lierhagen, Syverin; Handeland, Kjell.
A comparative study of hepatic trace element levels in wild moose, roe deer, and reindeer from Norway. Journal of Wildlife Diseases 2011 ;Volum 47.(3) s. 661-672

Organic Chemistry

Hertzberg, Sissel; Lutnaes, Bjart Frode; Jensen, Synnøve Liaaen.

Carotenoids with two chromophores: carotenoid retinoates. *Natural Product Research* 2011 ;Volum 25.(5) s. 511-525

Kaspersen, Svein Jacob; Sørnum, Christopher; Willassen, Veronica; Fuglseth, Erik; Kjøbli, Eli; Bjørkøy, Geir; Sundby, Eirik; Hoff, Bård Helge.

Synthesis and in vitro EGFR (ErbB1) tyrosine kinase inhibitory activity of 4-N-substituted 6-aryl-7H-pyrrolo[2,3-d]pyrimidine-4-amines. *European Journal of Medicinal Chemistry* 2011 ;Volum 46. s. 6002-6014

Nozière, Barbara; González, Névida J.D.; Borg-Karlson, Anna-Karin; Pei, Yuxin Pei; Redeby, Johan Pettersson; Krejci, Radovan; Dommen, Josef; Prévôt, André S. H.; Anthonsen, Thorleif.

Atmospheric chemistry in stereo: A new look at secondary organic aerosols from isoprene. *Geophysical Research Letters* 2011 ;Volum 38. s. L11807-L11811

Slungård, Sigrid Volden; Krakeli, Tor-Arne; Thvedt, Thor Håkon Krane; Fuglseth, Erik; Sundby, Eirik; Hoff, Bård Helge.

Investigation into the enantioselection mechanism of ruthenium-arene-diamine transfer hydrogenation catalysts using fluorinated substrates. *Tetrahedron* 2011 ;Volum 67.(31) s. 5642-5650



*Barnacle Geese with nestlings at Svalbard. © T. Berg**

Sperger, Christian; Tungen, Jørn Eivind; Fiksdahl, Anne.

Gold(I)-Catalyzed Reactions of Propargyl Esters with Vinyl Derivatives. *European Journal of Organic Chemistry* 2011 (20-21) s. 3719-3722

Stockmann, Vegar; Fiksdahl, Anne.

Synthesis of Novel 1,7-Naphthyridines by Friedländer Condensation of Pyridine Substrates. *Journal of Heterocyclic Chemistry* 2011 ;Volum 48. s. 13831387-

Stockmann, Vegar; Primpke, Sebastian; Fiksdahl, Anne.

7-Azacinnolin-4(1H)-one Preparation and NMR Studies of Tautomerism. *Journal of Heterocyclic Chemistry* 2011 ;Volum 48.(3) s. 737-741

Yu, Qiang; Carlsen, Per Henning.

Synthesis of a Novel Benzoyl Adenosine Analog Containing a 1, 4-Dioxane Sugar Analog and the Synthesis of a Corresponding Uracil Adenine Dinucleotide. *Molecules* 2011 ;Volum 16.(5) s. 3985-3998

Applied Theoretical Chemistry

Alsberg, Bjørn Kåre; Løke, Trond; Baarstad, Ivar.

PryJector: A device for in situ visualization of chemical and physical property distributions on surfaces using projection and hyperspectral imaging. *Journal of Forensic Sciences* 2011 ;Volum 56.(4) s. 976-983

Bedeaux, Dick; de Zarate, JMO; Pagonabarraga, Ignacio; Sengers, Jan V.; Kjelstrup, Signe.

Concentration fluctuations in non-isothermal reaction-diffusion systems. II. The nonlinear case. *Journal of Chemical Physics* 2011 ;Volum 135.(12) s. -

Burheim, Odne Stokke; Kjelstrup, Signe; Pharoah, John George; Vie, Preben Joakim Sveta; Møller-Holst, Steffen.

Calculation of reversible electrode heats in the proton exchange membrane fuel cell from calorimetric measurements. *Electrochimica Acta* 2011 ;Volum 56.(9) s. 3248-3257

Burheim, Odne Stokke; Pharoah, John George; Lampert, Hannah; Vie, Preben Joakim Sveta; Kjelstrup, Signe.

Through-Plane Thermal Conductivity of PEMFC Porous Transport Layers. *Journal of Fuel Cell Science and Technology* 2011 ;Volum 8.(2) s. -

Cacheiro, Javier Lopez; Pedersen, Thomas Bondo; Fernández, Berta; Sánchez de Merás, Alfredo; Koch, Henrik.

The CCSD(T) model with Cholesky decomposition of orbital energy denominators. *International Journal of Quantum Chemistry* 2011 ;Volum 111.(2) s. 349-355

Activities

Garcia-Perez, E; Schnell, Sondre Kvalvåg; Castillo, JM; Calero, S; Kjelstrup, Signe; Dubbeldam, D; Vlught, Thijs.

External Surface Adsorption on Silicalite-1 Zeolite Studied by Molecular Simulation. *The Journal of Physical Chemistry C* 2011 ;Volum 115.(31) s. 15355-15360

Glavatsky, Kyrlo.

Multicomponent interfacial transport as described by the square gradient model; evaporation and condensation. Springer Publishing Company 2011 (ISBN 978-3-642-15265-8) 171 s.

Glavatsky, Kyrlo; Kjelstrup, Signe.

Predicting hydrate stabilities. *Meta* 2011 (3) s. 22-23

Hammer, Nina; Mathisen, Karina; Zscherpe, Tina; Chen, De; Rønning, Magnus.

Effect of Pretreatment on Carbon-Supported Au/TiO₂ Catalysts for Preferential Oxidation of CO. *Topics in catalysis* 2011 ;Volum 54. s. 922-930

Hestad, Øystein Leif; Lundgaard, Lars Esben; Åstrand, Per-Olof.

n-tridecane as a model system for polyethylene: comparison of pre-breakdown phenomena in liquid and solid phase stressed by a fast transient. *IEEE transactions on dielectrics and electrical insulation* 2011 ;Volum 18.(6) s. 1929-1946

Hestad, Øystein Leif; Smalø, Hans Sverre; Åstrand, Per-Olof; Ingebrigtsen, Stian; Lundgaard, Lars Esben.

Effects of N,N-dimethylaniline and trichloroethene on prebreakdown phenomena in liquid and solid n-tridecane. *IEEE transactions on dielectrics and electrical insulation* 2011 ;Volum 18.(6) s. 1886-1896

Inzoli, Isabella Maria; Kjelstrup, Signe; Bedeaux, Dick; Simon, J..

Transfer coefficients for the liquid-vapor interface of a two-component mixture. *Chemical Engineering Science* 2011 ;Volum 66.(20) s. 4533-4548

Kjelstrup, Signe.

Non-equilibrium molecular dynamics simulations in physical chemistry. *Kjemi* 2011 (3) s. 14-15

Kjelstrup, Signe.

Overrasket. *Forskningspolitikk* 2011 ;Volum 34.(1) s. 31-31

Kjelstrup, Signe; Lervik, Anders; Bresme, Fernando. Molecular dynamics simulations of the molecular calcium pump. *Meta* 2011 (3) s. 24-25

Kjelstrup, Signe; Schnell, Sondre K.; Vlught, Thijs.

Computing thermodynamic properties of non-ideal mixtures. *Meta* 2011 (4) s. 36-37

Kristiansen, Tina; Mathisen, Karina; Einarsrud, Mari-Ann; Bjørgen, Morten; Nicholson, David Graham.



Collecting samples at Svalbard. © T. Berg*

Single-Site Copper by Incorporation in Ambient Pressure Dried Silica Aerogel and Xerogel Systems: An X-ray Absorption Spectroscopy Study. *The Journal of Physical Chemistry C* 2011 ;Volum 115.(39) s. 19260-19268

Liu, Xin; Schnell, Sondre K.; Simon, Jean-Marc; Bedeaux, Dick; Kjelstrup, Signe; Bardow, Andrew; Vlught, Thijs.

Fick Diffusion Coefficients of Liquid Mixtures Directly Obtained From Equilibrium Molecular Dynamics. *Journal of Physical Chemistry B* 2011 ;Volum 115. s. 12921-12929

Mathisen, Karina.

Kompendium for laboratoriekurs i KJ1030 Uorganisk kjemi. : Institutt for kjemi, NTNU 2011 79 s.

Mathisen, Karina; Meneau, Florian; Bøyesen, Katrine Lie.

A combined in situ XAS/Raman and WAXS study on nanoparticulate V₂O₅ in zeolites ZSM-5 and Y. *Phase Transitions* 2011 ;Volum 84.(8) s. 675-686

Mendoza, D.; Kjelstrup, Signe.

Modeling a non-equilibrium distillation stage using irreversible thermodynamics. *Chemical Engineering Science* 2011 ;Volum 66.(12) s. 2713-2722

Ning, Fulong; Zhang, Ling; Jiang, Guosheng; Tu, Yunzhong; Wu, Xiang; Yu, Yibing.

Comparison and application of different empirical correlations for estimating the hydrate safety margin of oil-based drilling fluids containing ethylene glycol. *Journal of Natural Gas Chemistry* 2011 ;Volum 20.(1) s. 25-33

Ortiz de Zarate, Jose M.; Bedeaux, Dick; Pagonabarraga, Ignacio; Sengers, Jan V.; Kjelstrup, Signe.

Nonisothermal diffusion-reaction with nonlinear Kramers kinetics. *Comptes rendus. Mecanique* 2011 ;Volum 339.(5) s. 287-291

Saepurahman, Saepurahman; Visur, Melina; Olsbye, Unni; Bjørgen, Morten; Svelle, Stian.

In Situ FT-IR Mechanistic Investigations of the Zeolite Catalyzed Methylation of Benzene with Methanol: H-ZSM-5 versus H-beta. *Topics in catalysis* 2011 ;Volum 54.(16-18) s. 1293-1301

Schnell, Sondre K.; Vlugt, Thijs; Simon, Jean-Marc; Bedeaux, Dick; Kjelstrup, Signe.

Thermodynamics of a small system in μT reservoir. *Chemical Physics Letters* 2011 ;Volum 504.(4-6) s. 199-201

Schnell, Sondre K.; Vlugt, Thijs; Simon, Jean-Marc; Bedeaux, Dick; Kjelstrup, Signe.

Thermodynamics of small systems embedded in a reservoir: a detailed analysis of finite size effects. *Molecular Physics* 2011

Schnell, Sondre Kvalvåg; Liu, Xin; Simon, Jean-Marc; Bardow, Andrew; Bedeaux, Dick; Vlugt, Thijs; Kjelstrup, Signe.

Calculating Thermodynamic Properties from Fluctuations at Small Scales. *Journal of Physical Chemistry B* 2011 ;Volum 115.(37) s. 10911-10918

Skorpa, Ragnhild; Bordiga, Silvia; Bleken, Francesca; Olsbye, Unni; Arstad, Bjørnar; Tolchard, Julian R; Mathisen, Karina; Svelle, Stian; Bjørgen, Morten.

Assessing the surface sites of the large pore 3-dimensional microporous material H-ITQ-7 using FT-IR spectroscopy and molecular probes. *Microporous and Mesoporous Materials* 2011 ;Volum 141.(1-3) s. 146-156

Skorpa, Ragnhild; Forselv, Stian; Mathisen, Karina; Bordiga, Silvia; Bjørgen, Morten; Svelle, Stian.

Infrared Spectroscopic Investigation of the Acidity and Availability of the Surface Hydroxyls of Three-Dimensional 12-Ring Zeotype H-ITQ-7. *The Journal of Physical Chemistry C* 2011 ;Volum 115.(24) s. 12090-12094

Smalø, Hans Sverre; Hestad, Øystein Leif; Ingebrigtsen, Stian; Åstrand, Per Olof.

Field dependence on the molecular ionization potential and excitation energies compared to conductivity models for insulation materials at high electric fields. *Journal of Applied Physics* 2011 ;Volum 109.(7)

ter Horst, Joop; Bedeaux, Dick; Kjelstrup, Signe.

The role of temperature in nucleation processes. *Journal of Chemical Physics* 2011 ;Volum 134.(5) s. 054703-054714

van der Ham, Leen; Gross, Joachim; Kjelstrup, Signe.

Two performance indicators for the characterization of the entropy production in a process unit. *Energy* 2011 ;Volum 36.(6) s. 3727-3732

van der Ham, Leen; Kjelstrup, Signe.

Improving the Heat Integration of Distillation Columns in a Cryogenic Air Separation Unit. *Industrial & Engineering Chemistry Research* 2011 ;Volum 50.(15) s. 9324-9338

van der Ham, Leen; Kjelstrup, Signe.

The Importance of Coupling between Thermal and Molar Fluxes in a Nitrogen-Oxygen Distillation Column. *International Journal of Thermodynamics* 2011 ;Volum 14.(4) s. 179-184



View from Kongsfjorden – Svalbard. © T. Berg*

Activities

Honours, Extracurricular activities, Participation in Courses, Conferences, Lectures, and Study Visits

B. Alsberg

Section Leader, Applied Theoretical Chemistry Group, Department of Chemistry, NTNU.

ICRM - 5th International Chemometrics Research Meeting, Nijmegen, Netherlands, Sep. 25 – 29, 2011.

Co-Author on Poster Presentation: A Method for rapid Localization of Bone Fragments on Surfaces using Chemical Imaging and Backprojection.

T.N. Andreassen

Kjemiløypa 2011, NTNU, Trondheim, Sep. 26 – 30, 2011.

T. Anthonsen

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Poster Presentation: Antiepileptic Drug (R)-Stiripentol.

COST Action CM0701 Biocatalysis Summer Training School, Siena, Italy, April 27 – May 1, 2011.

Co-Author on Poster Presentation: Kinetic Resolution of Dihalocyclopropyl Alcohols.

Conference “Det 19. landsmøte i kjemi”, Lillestrøm, Norway, Sep. 28 – 29, 2011.

Co-Author on Poster Presentations: “Femti år med organisk kjemi på NTH, Trondheim 1910-1960. Bevare historien”, “Nils Andreas Sørensen (1909-1987): Professor i Organisk kjemi NTH 1939-1976”, “Professor Sørensen: Acetylenforbindelser i kurvblomster. UV-spektroskopi 1940-60, så kom NMR til NTH!” and “Professor Sørensen - Engasjert foreleser og debattant”.

M. Ardelan

Mesocosm Experiment in the Comau Fjord, Chile, Jan. 15 – Feb. 24, 2011.

Research Stay (WAFOW Project) at Dokuz Eylul University, Izmir, Turkey, June 20 – July 18, 2011.

Mesocosm Experiment (WAFOW Project) at Agdenes, Norway, Sep. 9 – 30, 2011.

Conference “Transatlantic Science Week”, San Francisco, CA, USA, Sep. 25 – 26, 2011.

Co-Author on Lecture on: Underwater Monitoring of Bio-Geo-Chemical Objects of Interest using Underwater Hyperspectral Imagery.

Research Co-Operation with UC Berkeley & Stanford University and Scripps Institute of Oceanography, California, USA, Dec. 15 – 31, 2011.

F.G. Banica

Referee for the Czech Science Foundation.

XXI International Symposium on Bioelectrochemistry and Bioenergetics, Kracow, Poland, May 8 – 12, 2011.

Co-Author on Poster Presentation: The Study on the Properties of Self-Assembled Bimolecular Layers at Gold Electrode with Incorporated Calixarenes for Catecholamine Detection.

2nd International Conference on Bio-Sensing Technology, Amsterdam, Netherlands, Oct. 10 – 12, 2011.

Co-Author on Poster Presentation: Electrochemical Impedance Spectroscopy for Assessing the Recognition of Cytochrome c by Immobilized Calixarenes.

D. Bedeaux

Visit at ETH Zurich, Switzerland, March 2 – 10, 2011.

Co-Author on Guest Lecture on: Thermodynamics of a Small System in μ T Reservoir.

Conference “FISES 2011”, Barcelona, Spain, June 2 – 4, 2011.

Co-Author on Lecture on: Thermodynamics of a Small System in a μ ,T Reservoir.

JETC11 Joint European Thermodynamics Conference, Chemnitz, Germany, June 26 – 29, 2011.

Co-Author on Lectures on: “Multicomponent Interfacial Transport as described by the Square Gradient Model”, “Thermodynamics at Small Scales” and “Local Equilibrium for the Gibbs Surface in 2-Phase Multi-Component Mixtures”.

Lorentz Workshop on the Dynamics of Complex Fluid-Fluid Interfaces, Leiden, Netherlands, Sep. 26 – 30, 2011.

Co-Author on Lecture on: The Non-Equilibrium Square Gradient Theory; Non-Equilibrium Thermodynamics for Surfaces and Local Equilibrium.

BIT's 1st Annual Congress of Nano-S&T-2011, Dalian, China, Oct. 23 – 27, 2011.

Co-Author on Lectures on: “The Role of the Temperature in the Nucleation Process” and “Local Equilibrium for the Gibbs Surface in a 2-Phase Multi-Component Mixture”.

T. Berg

Field Work, Ny-Ålesund, Spitzbergen, June 23 – July 7 and Nov. 21 – 29, 2011.

"Kvikksølv kommer med sollyset". Interview on Internet, Jan. 31, 2011.

24th TFM ICP Vegetation, Rapperswil, Switzerland, Jan. 31 – Feb. 3, 2011.

Co-Author on Lecture on: Is it possible to estimate Atmospheric Deposition of heavy Metals by Analysis of Terrestrial Mosses?

"Arctic Mercury Mystery: Meteorological Conditions in the Spring and Summer to Blame?" Interview on Internet "Science Daily", Feb. 1, 2011.

"Artico, cresce la concentrazione di mercurio: è colpa delle condizioni meteorologiche primaverili/estive?" Interview on Internet "Medio Giornale", Feb. 3, 2011.

"Bekymret for elgen i Sør-Norge". Interview in the Newspaper "Aftenposten", Feb. 7, 2011.

"Elgen får helsesjekk". Interview in the Newspaper "Agerposten", Feb. 8, 2011.

"Elgen i sør sykere enn elgen i nord". Interview on TV; NRK Hedmark og Oppland, Feb. 8, 2011.

"Nå skal elggåten løses". Interview on TV; NRK Sørlandet, Feb. 8, 2011.

"Nå skal elggåten løses". Interview on Radio; NRK Nyheter, Feb. 8, 2011.

"Skal sjekke sør-norsk "pingle-elg". Interview in the Newspaper "Smaalenes avis", Feb. 8, 2011.



Torunn Berg collecting samples, © T. Berg*

"Sunnere elg i nord". Interview in the Newspaper "Finmark Folkeblad", Feb. 8, 2011.

"Helseproblemer hos skogens konge". Interview on Internet, Feb. 9, 2011.

"Friskere elg i nord". Interview in the Newspaper "Finmarken", Feb. 11, 2011.

Seminar "Miljø 2015 – III", NFR, Oslo, Feb. 15 – 16, 2011.

Lecture on: Fortynning av atmosfærisk kvikksølv i Arktis (AMDE): Forekomst og skjebne.

"Er de norske elge påvirket af tungmetaller?". Interview on Internet (Danmarks Jægerforbund), March 6, 2011.

10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, Nova Scotia, Canada, July 24 – 29, 2011.

Co-Author on Lecture on: Mercury in the European Arctic: What we know from Observations in Ny-Ålesund, Svalbard.

Co-Author on Poster Presentations: "Trends in Atmospheric Mercury Concentrations in the Northern Hemisphere: Why is the Arctic Different?", "The Physical and Chemical Controls on the Behaviour of Cryospheric Mercury" and "Does Deposition of Atmospheric Mercury to Arctic Regions lead to elevated Uptake of Mercury to Marine Phytoplankton?"

2nd International Conference on Air Pollution and Control, Antalya, Turkey, Sep. 19 – 23, 2011.

Co-Author on Lecture on: Three Decades of Atmospheric Metal Deposition in Norway as Evident from Analysis of Moss Samples.

M. Bjørgen

Research Stay at University of Oslo, Department of Chemistry, Jan. 24 – Feb. 4, March 14 – 28, April 4 – 15, May 2 – 18, May 26 – June 2, June 17 – Aug. 12, Aug. 30 – Sep. 2, Oct. 4 – 24, Oct. 28 – Nov. 7, Nov. 10 – 24 and Dec. 4 – 15, 2011.

S. Bugge

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 – 9, 2011.

Co-Author on Poster Presentation: Thieno- and Pyrrolopyrimidines as potential Kinase Inhibitors.

The 2011 PhD Candidate Seminar on Medicinal Technology, NTNU, Trondheim, May 26, 2011.

Co-Author on Poster Presentation: Pyrrolo- and Thienopyrimidines as Potential Kinase Inhibitors.

17th European Symposium on Organic Chemistry, University of Crete, Hersonissos, Crete, July 10 – 15, 2011.

Co-Author on Poster Presentation: Pyrrolo- and Thienopyrimidines as Potential Kinase Inhibitors.

Activities

O. Burheim

Research Stay at FCRC/Queens University, Kingston, Ontario, Canada, Jan. 3 – 21, 2011.

Conference “Hydrogen and Fuel Cell 2011”, Vancouver, BC Canada, May 15 – 18, 2011.

Co-Author on Lecture on: “Hydrogen Production using Reverse Electro Dialysis” and “Comparing PEM Fuel Cell Performances in a Calorimeter”.

Researcher in Part Time Position at Wetsus, Centre of Excellence for Sustainable Water Technology, Leeuwarden, Netherlands, Aug. 1 – 26, Sep. 5 – Oct. 17, Oct. 20 – Dec. 5 and Dec. 12 – 22, 2011.

Conference “IMECE2011”, Denver, Colorado, USA, Nov. 11 – 17, 2011.

Co-Author on Lectures on: “Auto Generative Capacitive Mixing for Power Conversion of Sea and River Water by the use of Membranes” and “Improved Reverse Electrodialysis using Membranes with Integrated Spacers”.

K.L. Bøyesen

Research Stay at the European Synchrotron Radiation Facility (ESRF), Swiss-Norwegian Beam Line, Grenoble, France, April 16 - 27 and Oct. 24 – Nov. 3, 2011.

Research Stay and Spectroscopy Workshop at Synchrotron Soleil, Paris, France, June 22 – 26, 2010.

Research Stay at Max-Lab., Lund, Sweden, Nov. 9 – 14, 2011.

P. Carlsen

Research Stay at University of Perugia, Italy, Jan. 1 – 17, 2011.

A. Fiksdahl

Board Member of the KOSK II Research Program, The Research Council of Norway.

Board Member of “Faggruppen for Organisk kjemi” (the Group of Organic Chemistry) of the Norwegian Chemical Society.

Member of “Det Kongelige Norske Vitenskapers Selskap (DKNVS), 2010 -.

NTNUs Board Member of “Anders Jahres Fond”, 2011-.

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Lecture on: Synthesis and Application of new Chiral N-Heterocyclic Carbenes.

Co-Author on Poster Presentations: “Preparation of a new Chiral N-Heterocyclic Carbene”, “Gold(I)-

catalysed reactions of Propargylesters with Vinyl-Derivatives” and “Gold(I)-Catalysed Reactions of Propargylesters with Vinyl-Derivatives”.

International Organometallic Conference (OMCOS16), Shanghai, China, July 23 – 28, 2011.

Co-Author on Poster Presentation: Synthesis and Application of Chiral N-Heterocyclic Carbene Precursors.



Kongsfjorden seen from The Zeppelin mountain.
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T.P. Flaten

Deputy Head of the Department of Chemistry.

Board Member, The Committee for Geomedicine of the Norwegian Academy of Science and Letters.

Board Member, Norwegian Chemical Society, Trondheim Branch.

Editor, Norsk Epidemiologi (Norwegian Journal of Epidemiology).

“Bekymret for elgen i Sør-Norge”. Interview in the Newspaper “Aftenposten”, Feb. 7, 2011.

“Elgen får helsesjekk”. Interview in the Newspaper “Agderposten”, Feb. 8, 2011.

“Elgen i sør sykere enn elgen i nord”. Interview on TV; NRK Hedmark og Oppland, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on TV; NRK Sørlandet, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on Radio; NRK Nyheter, Feb. 8, 2011.

"Skal sjekke sør-norsk "pingle-elg". Interview in the Newspaper "Smaalenenes avis", Feb. 8, 2011.

"Sunnere elg i nord". Interview in the Newspaper "Finnmark Folkeblad", Feb. 8, 2011.

"Helseproblemer hos skogens konge". Interview on Internet, Feb. 9, 2011.

"Friskere elg i nord". Interview in the Newspaper "Finnmarken", Feb. 11, 2011.

"Er de norske elge påvirket af tungmetaller?". Interview on Internet (Danmarks Jægerforbund), March 6, 2011.

47th Eurotox Conference "Eurotox 2011", Paris, France, Aug. 28 – 31, 2011.

Co-Author on Poster Presentation: Fatal Pesticides-Related Self-Poisonings in the Southeastern Region of Serbia – Alarming Increase in Suicides Calls for Restrictions.

9th ISTERH Conference: "Trace Elements in Health and Disease: Essentiality, Toxicity", Belek, Turkey, Oct. 16 – 21, 2011.

Co-Author on Lectures on: "Iron Mobilization using Chelation and Phlebotomy" and "Manganese in CSF and Blood Plasma from ALS Patients".

O.R. Gautun

Member of NFRs Committee for Marine Bioprospecting and Organic Synthesis.

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Poster Presentations: "Synthesis of new Bis(Oxazoline) (BOX) Ligands for Chiral Catalysts" and "The Preparation of Vinylic Side Chains for Potential Therapeutic Agents against Multiple Myeloma".

Meeting at Norwegian Chemical Society, Trondheim Branch, Feb. 22, 2011.

Guest Lecture: "Nobelprisen i kjemi 2010".

Exposition at the Library of Science, NTNU, Trondheim, May 23 – June 1, 2011.

Poster Presentation: Nobel Prize in Chemistry 2010.

The 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS16), Shanghai, China, July 24 – 28, 2011.

Co-Author on Poster Presentation: Studies towards the Synthesis of Potential Selective Inhibitors of Tyrosine Kinase 2.

K.F. Gebremariam

Research Stay at the European Synchrotron Radiation Facility (ESRF), Swiss-Norwegian Beam Line, Grenoble, France, June 21 – 25, 2011.

5th Intensive School on Conservation Science, Marmara University, Istanbul, Turkey, July 19 – 29, 2011.

Presentation of a Poster dealing with the Physico-Chemical Investigation of Ethiopian Paintings.

ICOM-CC 16th Triennial Conference, Lisbon, Portugal, Sep. 19 – 23, 2011.

Co-Author on Lecture on: A Multidisciplinary Approach to Conservation of Rock Art in Honnhammer, Norway.

The Joint ICTP-IAEA School on Synchrotron Applications in Cultural Heritage and Environmental Sciences and Multidisciplinary Aspects of Imaging Techniques, Trieste, Italy, Nov. 21 – 25, 2011.

A. Gerontas

8th International Conference on the History of Chemistry, Rostock, Germany, Sep. 14 – 16, 2011.

Lecture on: The Birth and the first Steps of High Performance Liquid Chromatography in the Laboratories; An Example of the Exchanges between Academia and Industry in the United States of the 1960s.

Conference "Jahrestagung der DGMNT in Stuttgart", Stuttgart, Germany, Sep. 22 – 24, 2011.

Lecture on: From Gas Chromatography to High Performance Liquid Chromatography; a Shift in Chemical Practice in an Era of Change.

K. Glavatsky

Gas Hydrates Symposium at ACS 241st National Meeting, Anaheim, CA, USA, March 17 – 28, 2011.

Co-Author on Lecture on: Lattice Parameters and corresponding Properties of Methane and Carbon Dioxide Hydrates: Molecular Dynamic Simulations.

JETC11 Joint European Thermodynamics Conference, Chemnitz, Germany, June 26 – 29, 2011.

Co-Author on Lectures on: "Multicomponent Interfacial Transport as described by the Square Gradient Model" and "Local Equilibrium for the Gibbs Surface in 2-Phase Multi-Component Mixtures".

7th International Conference on Gas Hydrates, Edinburgh, Scotland, UK, July 17 – 24, 2011.

Co-Author on Poster Presentation: Understanding the Stability of CO₂+CH₄ Hydrate from Adsorption MC Simulations.

Lorentz Workshop on the Dynamics of Complex Fluid-Fluid Interfaces, Leiden, Netherlands, Sep. 26 – 30, 2011.

Co-Author on Lecture on: The Non-Equilibrium Square Gradient Theory; Non-Equilibrium Thermodynamics for Surfaces and Local Equilibrium.

Activities

BIT's 1st Annual Congress of Nano-S&T-2011, Dalian, China, Oct. 23 – 27, 2011.

Co-Author on Lecture on: Local Equilibrium for the Gibbs Surface in a 2-Phase Multi-Component Mixture.



*Kongsfjorden in summertime, seen from The Zeppelin mountain. © T. Berg**

L. van der Ham

6th Trondheim Conference on CO₂ Capture, Transport and Storage, SINTEF Energie, Trondheim, June 14 – 16, 2011.

Co-Author on Lecture on: Applying Novel Distillation Techniques to the ASU of an IGCC with pre-Combustion CO₂-Capture.

ECOS 2011 Conference, Novi Sad, Serbia, July 4 – 7, 2011.

Co-Author on Lecture on: Distributing the Heat Integration of Distillation Columns for Air Separation.

23rd IIR International Congress of Refrigeration, Prague, Czech Republic, Aug. 21 – 26, 2011.

Co-Author on Lectures on: "Design of an Experimental Set-up for Performance Assessment of Heat-Integrated Air Distillation Columns" and "Improving the Heat Integration of Distillation Columns in a Cryogenic Air Separation Unit".

B.H. Hoff

Section Leader, Organic Chemistry Group, Department of Chemistry, NTNU.

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Lectures on: "Synthesis, Characterization and In-Vitro Testing of 4-N-Substituted 6-Aryl-7H-Pyrrolo[2,3-d]Pyrimidine-4-Amines as EGFR (ErbB1)Tyrosine Kinase

Inhibitors" and "Enantioenriched 1-Aryl-2-Fluoroethylamines. Efficient Lipase Catalysed Resolution and Limitations to the Mitsunobu Inversion Protocol".

Co-Author on Poster Presentations: "Thieno- and Pyrrolopyrimidines as potential Kinase Inhibitors" and "Chiral Derivatives of Butenafine and Terbinafine: Synthesis and Antifungal Activity".

The 2011 PhD Candidate Seminar on Medicinal Technology, NTNU, Trondheim, May 26, 2011.

Co-Author on Poster Presentation: Pyrrolo-and Thienopyrimidines as Potential Kinase Inhibitors.

Seminar "EuCHEMS 3. Young Investigators Workshop", University of Crete, Heraklion, Crete, July 8 – 9, 2011.

Lecture on: Fluorinated Building Blocks, Antifungal Agents and EGFR-Kinase Inhibition.

17th European Symposium on Organic Chemistry, University of Crete, Hersonissos, Crete, July 10 – 15, 2011.

Co-Author on Poster Presentations: "Pyrrolo- and Thienopyrimidines as Potential Kinase Inhibitors" and "Chiral derivatives of Butenafine and Terbinafine: Synthesis and Antifungal Activity".

S. Iftekhar

"Vinterkonferansen 2011", Stavanger, Norway, Jan. 11 – 13, 2011.

Co-Author on Lecture on: Implications of Climate-Induced Increases in NOM in Sub-Alpine Regions.

S.J. Kaspersen

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Lecture on: Synthesis, Characterization and In-Vitro Testing of 4-N-Substituted 6-Aryl-7H-Pyrrolo[2,3-d]Pyrimidine-4-Amines as EGFR (ErbB1)Tyrosine Kinase Inhibitors.

Co-Author on Poster Presentation: Thieno- and Pyrrolopyrimidines as potential Kinase Inhibitors.

The 2011 PhD Candidate Seminar on Medicinal Technology, NTNU, Trondheim, May 26, 2011.

Co-Author on Poster Presentation: Pyrrolo-and Thienopyrimidines as Potential Kinase Inhibitors.

17th European Symposium on Organic Chemistry, University of Crete, Hersonissos, Crete, July 10 – 15, 2011.

Co-Author on Poster Presentation: Pyrrolo- and Thienopyrimidines as Potential Kinase Inhibitors.

S. Kjelstrup

Professor in Part Time Position at TU Delft, Netherlands, Jan. 2 – 15, March 12 – 27, June 1 – 24 and Sep. 13 – 16.



Svalbard reindeer. © T. Berg*

ChemE Faculty Colloquium, TU Delft, Netherlands, Jan. 10, 2011.

Guest Lecture on: The Ca-ATPase: A Molecular Pump for Ions and Heat.

Visit at ETH Zurich, Switzerland, March 2 – 10, 2011.

Co-Author on Guest Lecture on: Thermodynamics of a Small System in μ T Reservoir.

Gas Hydrates Symposium at ACS 241st National Meeting, Anaheim, CA, USA, March 17 – 28, 2011.

Co-Author on Lecture on: Lattice Parameters and corresponding Properties of Methane and Carbon Dioxide Hydrates: Molecular Dynamic Simulations.

Conference “FISES 2011”, Barcelona, Spain, June 2 – 4, 2011.

Co-Author on Lecture on: Thermodynamics of a Small System in a μ T Reservoir.

6th Trondheim Conference on CO₂ Capture, Transport and Storage, SINTEF Energie, Trondheim, June 14 – 16, 2011.

Co-Author on Lecture on: Applying Novel Distillation Techniques to the ASU of an IGCC with pre-Combustion CO₂-Capture.

JETC11 Joint European Thermodynamics Conference, Chemnitz, June 26 – 29, 2011.

Key Note Speaker.

Co-Author on Lectures on: “Thermodynamics at Small Scales” and “Local Equilibrium for the Gibbs Surface in 2-Phase Multi-Component Mixtures”.

Conference “FEZA”, Valencia, Spain, July 3 – 7, 2011.

Co-Author on Lecture on: External Surface Adsorption on Silicalite-1 Zeolite Studied by Molecular Simulation.

ECOS 2011 Conference, Novi Sad, Serbia, July 4 – 7, 2011.

Co-Author on Lecture On: Distributing the Heat Integration of Distillation Columns for Air Separation.

7th International Conference on Gas Hydrates, Edinburgh, Scotland, UK, July 17 – 24, 2011.

Co-Author on Poster Presentation: Understanding the Stability of CO₂+CH₄ Hydrate from Adsorption MC Simulations.

23rd IIR International Congress of Refrigeration, Prague, Czech Republic, Aug. 21 – 26, 2011.

Co-Author on Lectures on: “Design of an Experimental Set-up for Performance Assessment of Heat-Integrated Air Distillation Columns” and “Improving the Heat Integration of Distillation Columns in a Cryogenic Air Separation Unit”.

Conference “Thermodynamics 2011”, Athens, Greece, Aug. 31 – Sep. 3, 2011.

Co-Author on Lecture on: Thermodynamics of a Small System in μ T Reservoir.

Organizer of International Workshop at Leiden University, Netherlands, Sep. 26 – 30, 2011.

Lecture on: Active Transport by the Ca-ATPase as studied by Non-Equilibrium Thermodynamics.

Workshop “Modern Views of Thermodynamics of Irreversible Processes”, Technical University of Berlin, Germany, Oct. 10 – 11, 2011.

Lecture on: Non-Equilibrium Thermodynamics Theory in the Development of Fuel Cells.

CHINOR Exchange Programme from NFR (Co-operation China – Norway), Dalian, Shenyang and Hubei, China, Oct. 21 – Nov. 7, 2011.

Invited Lecture and Guest Visits.

Lecture at North-Eastern University of China, Shenyang: Nature-Inspired Energy Efficient Design.

Lecture at China University of Geology, Wuhan: Nature-Inspired Energy Efficient Design.

BIT's 1st Annual Congress of Nano-S&T-2011, Dalian, China, Oct. 23 – 27, 2011.

Co-Author on Lectures on: “The Role of the Temperature in the Nucleation Process” and “Local Equilibrium for the Gibbs Surface in a 2-Phase Multi-Component Mixture”.

Workshop at Aalto University of Technology, Helsinki, Finland, Dec. 1 – 2, 2011.

Two Lectures on:

I. Entropy Production Minimization in Theory and Practice.

II. Heat, Mass and Charge Transport and Chemical Reactions at Surfaces.

H. Koch

Research Stay at Universidad de Valencia, Spain, March 15 – 30 and June 22 – July 29, 2011.

EU Project Co-operation, Brussels, Belgium, Oct. 2 – 8, 2011.

Activities

T. Kristiansen

Research Stay at the European Synchrotron Radiation Facility (ESRF), Swiss-Norwegian Beam Line, Grenoble, France, April 11 – 27 and Oct. 26 – Nov. 2, 2011.

Research Stay at Max-Lab., Lund, Sweden, Nov. 9 – 15, 2011.

L. Kvittingen

Field Work at Dilla University and Addis Abeba University, Ethiopia, Feb. 8 – 20, 2011.

International Edelstein Colar Symposium, Tel Aviv University, Israel, Feb. 26 – March 5, 2011.

Research at British Museum in London, at Glasgow University, Scotland, UK and at London University, Sep. 20 – 27, 2011.

Kjemiløypa 2011, NTNU, Trondheim, Sep. 26 – 30, 2011.

A. Lervik

Research Stay at Imperial College, London, UK, Aug. 8 – Sep. 9, 2011.

S. Lierhagen

10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, Nova Scotia, Canada, July 24 – 29, 2011.

Co-Author on Poster Presentation: Does Deposition of Atmospheric Mercury to Arctic Regions lead to elevated Uptake of Mercury to Marine Phytoplankton?

9th ISTERH Conference: "Trace Elements in Health and Disease: Essentiality, Toxicity", Belek, Turkey, Oct. 16 – 21, 2011.

Co-Author on Lecture on: Manganese in CSF and Blood Plasma from ALS Patients.

A. Lykknes

Maternity Leave, Jan. 1 – March 8, 2011.

Member of the Scientific/Programme Committee of the 6th Meeting of STEP (Science and Technology in the European Periphery), to be held in Corfu, Greece, in June 2012.

Vice Chair of the Working Party on the History of Chemistry, EuCheMS (from Sep. 2011).

Board Member of the Commission on the History of Women in Science, Technology and Medicine, of the International Union for the History of Science, Technology and Medicine, Division of History of Science and Technology.

Board Member and Secretary of the History of Chemistry Group of the Norwegian Chemical Society.

8th International Conference on the History of Chemistry: "Pathways of Knowledge", Rostock, Germany, Sep. 14 – 16, 2011.

Member of the Scientific Committee of the Conference.

Co-Author on Lecture on: Ida and Walter Noddack through Better and Worse: An Arbeitsgemeinschaft in Chemistry.

Member of Programme Committee for the Conference: International Symposium on the History of Women in Science, organized by Commission on the History of Women in Science, Technology and Medicine, of the International Union for the History of Science, Technology and Medicine, Division of History of Science and Technology, Paris, France, Sep. 14 – 16, 2011.

Exhibition: "Marie Sklodowska / Madame Curie" at Nobel Museum, Stockholm, Sweden, Sep. 16, 2011.

"Radioaktivitet i början av 1900-talet".

"Forskningsrådets festaften", The Research Council of Norway, Oslo, Sep. 21, 2011.

Lecture on: "Ellen Gleditsch: Fra Marie Curies protegé til profet i eget land".



Ingvill Moen at Zeppelin Mountain metering station.
© T. Berg*



The northernmost steam engine in the world.
© T. Berg*

Kjemiløypa 2011, NTNU, Trondheim, Sep. 26 – 30, 2011.

Participant at 19th "Landsmøte i kjemi", organized by Norsk Kjemisk Selskap, Lillestrøm, Norway, Sep. 28 – 29, 2011.

Exhibition at Realfagbygget, NTNU, Trondheim, Oct. 21 – Nov. 30, 2011.

"Ellen Gleditsch: Professor, radiokjemiker og kvinnelig forbilde".

4th Norwegian Conference of History of Science, Oslo, Norway, Nov. 20 – 22, 2011.

Co-Author on Lecture on: Ida and Walter Noddack through Better and Worse: An Arbeitsgemeinschaft in Chemistry.

M. Martinsen

Research Stay at Vancouver Island University, Nanimo BC, Canada, May 18 – July 18, 2011.

59th ASMS Conference on Mass Spectrometry and Allied Topics, Denver, Colorado, USA, June 5 – 9, 2011.

Co-Author on Poster Presentations: "A Rugged, Portable Membrane Introduction Tandem Mass Spectrometer (MIMS-MS/MS) for In-Field, On-Line Contaminant Monitoring in the Alberta Oil Sands" and "Investigations of the Application of Membrane Introduction Mass Spectrometry (MIMS-MS) for the Environmental Analysis of Crude Oil Contamination in Water".

K. Mathisen

Research Stay at the European Synchrotron Radiation Facility (ESRF), Swiss-Norwegian Beam Line, Grenoble, France, April 19 – 27 and Oct. 24 – Nov. 2, 2011.

Research Stay at Max-Lab., Lund, Sweden, Nov. 9 – 14, 2011.

M. Mekki

Research Stay at Universidad de Valencia, Spain, July 4 – 29, 2011.

S. Melnes

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Poster Presentations: "Synthesis of new Bis (Oxazoline) (BOX) Ligands for Chiral Catalysts" and "The Preparation of Vinylic Side Chains for Potential Therapeutic Agents against Multiple Myeloma".

The 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS16), Shanghai, China, July 24 – 28, 2011.

Co-Author on Poster Presentation: Studies towards the Synthesis of Potential Selective Inhibitors of Tyrosine Kinase 2.

Ø. Mikkelsen

Section Leader, Analytical and Environmental Chemistry Group, Department of Chemistry, NTNU.

"Vinterkonferansen 2011", Stavanger, Norway, Jan. 11 – 13, 2011.

Co-Author on Lecture on: Implications of Climate-Induced Increases in NOM in Sub-Alpine Regions.

Field Work at Lillesand, Norway, Jan. 27 – 31, April 13 – 20, May 26 – 31, Aug. 11 – 16 and Nov. 15 – 18, 2011.

59th ASMS Conference on Mass Spectrometry and Allied Topics, Denver, Colorado, USA, June 5 – 9, 2011.

Co-Author on Poster Presentation: Investigations of the Application of Membrane Introduction Mass Spectrometry (MIMS-MS) for the Environmental Analysis of Crude Oil Contamination in Water.

Researchers' Night, NTNU, Trondheim, Sep. 23, 2011.

Lecture on: Banana Rules! Stands på Researchers' Night.

Forskningsdagene, Trondheim Folkebibliotek and NTNU, Trondheim, Sep. 24, 2011.

Lecture on: "Kjemi i godteposen" Barneuniversitetet.

Activities

M.A. Mohsin

XXI International Symposium on Bioelectrochemistry and Bioenergetics, Krakow, Poland, May 8 – 12, 2011.

Co-Author on Poster Presentation: The Study on the Properties of Self-Assembled Bimolecular Layers at Gold Electrode with Incorporated Calixarenes for Catecholamine Detection.

2nd International Conference on Bio-Sensing Technology, Amsterdam, Netherlands, Oct. 10 – 12, 2011.

Co-Author on Poster Presentation: Electrochemical Impedance Spectroscopy for Assessing the Recognition of Cytochrome c by Immobilized Calixarenes.

D.G. Nicholson

Leave of Absence, Jan. 1 – Dec. 31, 2011.

Chairman, SNX Council, Swiss-Norwegian Beamlines at the European Synchrotron Radiation Facility, Grenoble, France.

Scientific Advisory Council, Max IV Synchrotron Project, Max-Lab., Lund, Sweden.

SNX Council Meeting (SNBL) and Research Project, Groyere – Caux (Lausanne), Switzerland, May 30 – June 7, 2011.

Research Stay at the European Synchrotron Radiation Facility (ESRF), Swiss-Norwegian Beam Line (SNBL), Grenoble, France, June 21 – 30, 2011.

8th International Conference, Cultural Heritage Project, Rostock/Berlin, Germany, Sep. 12 – 18, 2011.

M. Nordløyken

“Bekymret for elgen i Sør-Norge”. Interview in the Newspaper “Aftenposten”, Feb. 7, 2011.

“Elgen får helsesjekk”. Interview in the Newspaper “Agderposten”, Feb. 8, 2011.

“Elgen i sør sykere enn elgen i nord”. Interview on TV; NRK Hedmark og Oppland, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on TV; NRK Sørlandet, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on Radio; NRK Nyheter, Feb. 8, 2011.

“Skal sjekke sør-norsk ”pingle-elg”. Interview in the Newspaper “Smaalenes avis”, Feb. 8, 2011.

“Sunnere elg i nord”. Interview in the Newspaper “Finnmark Folkeblad”, Feb. 8, 2011.

“Helseproblemer hos skogens konge”. Interview on Internet, Feb. 9, 2011.

“Friskere elg i nord”. Interview in the Newspaper “Finnmarken”, Feb. 11, 2011.

“Er de norske elge påvirket af tungmetaller?”. Interview on Internet (Danmarks Jægerforbund), March 6, 2011.

M. - L. Olivier

Head of the Department of Chemistry from Nov. 1, 2011.

V. Partali

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Poster Presentations: “Controlling Aggregation-Aggregates of Predifined Size from Highly Unsaturated Selena Phospholipid” and “Study of Surface Properties of Highly Unsaturated Conjugated Soaps”.

Visit at Heinrich-Heine-Universität, Düsseldorf, Germany, May 26 – 31, 2011.

16th International Symposium on Carotenoids, Crakow, Poland, July 17 – 22, 2011.

Co-Author on Lectures on: “Synthesis of longest chain carotenoids with 27 double bonds”, “Structural and Formulation Factors Influencing Carotenoid Lipid-Based DNA Delivery”, “Controlling Aggregation-Carotenoids Aggregates with Predifined Size” and “Superlative Carotenoids”.

Co-Author on Poster Presentations: “Carotenoid as antireductants” and “Study of Surface Properties of Highly Unsaturated Conjugated Soaps”.

Annual Meeting at Weill Cornell Medical College in Doha, Quatar, Nov. 11 – 20, 2011.

Research Stay at Aristotle University, Thessaloniki, Greece, Dec. 19 – 23, 2011.



Collecting samples in the Arctic. © T. Berg*



*The museum in Ny Ålesund. © T. Berg**

E. - M. Sandru

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Poster Presentation: Controlling Aggregation-Aggregates of Predifined Size from Highly Unsaturated Selena Phospholipid.

16th International Symposium on Carotenoids, Crakow, Poland, July 16 – 24, 2011.

Co-Author on Lecture on: Controlling Aggregation-Carotenoids Aggregates with Predifined Size.

R. Schmid

59th ASMS Conference on Mass Spectrometry and Allied Topics, Denver, Colorado, USA, June 5 – 9, 2011.

Co-Author on Poster Presentation: Investigations of the Application of Membrane Introduction Mass Spectrometry (MIMS-MS) for the Environmental Analysis of Crude Oil Contamination in Water.

Field Work at SAGD Statoil and Leismer Lodge, Conklin, Wood Buffalo, AB Canada, June 22 – 30, 2011.

A. Simic

47th Eurotox Conference "Eurotox 2011", Paris, France, Aug. 28 – 31, 2011.

Co-Author on Poster Presentation: Fatal Pesticides-Related Self-Poisonings in the Southeastern Region of Serbia – Alarming Increase in Suicides Calls for Restrictions.

N. Simic

Field Work, Niš, Serbia, June 1 - 8, 2011.

A.P. Ratvik

Head of the Department of Chemistry till Oct. 31, 2011.

50th Annual Conference of Metallurgists of CIM (COM 2011), Montreal, Canada, Oct. 2 – 5, 2011.

Co-Author on Lecture on: Cathode Wear Investigations in a Laboratory Test Cell.

R. Skorpa

Conference "MolSim2011", University of Amsterdam, Netherlands, Jan. 3 – 14, 2011.

Research Stay at TU Delft, Netherlands, Jan. 17 – 31 and Sep. 5 – Dec. 23, 2011.

C. Sperger

Conference "26. Organisk kjemisk vintermøte", Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Lecture on: Synthesis and Application of new Chiral N-Heterocyclic Carbenes.

Co-Author on Poster Presentations: Preparation of a new Chiral N-Heterocyclic Carbene" and "Gold(I)-Catalysed Reactions of Propargylesters with Vinyl-Derivatives".

International Organometallic Conference (OMCOS16), Shanghai, China, July 23 – 28, 2011.

Co-Author on Poster Presentation: Synthesis and Application of Chiral N-Heterocyclic Carbene Precursors.

A.O. Steen

"Kvikksølv kommer med sollyset". Interview on Internet, Jan. 31, 2011.

"Arctic Mercury Mystery: Meterological Conditions in the Spring and Summer to Blame?"

Interview on Internet "Science Daily", Feb. 1, 2011.

"Artico, cresce la concentrazione di mercurio: è colpa delle condizioni meteorologiche primaverili/estive?"

Interview on Internet "Medio Giernale", Feb. 3, 2011.

10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, Nova Scotia, Canada, July 24 – 29, 2011.

Co-Author on Lecture on: Mercury in the European Arctic: What we know from Observations in Ny-Ålesund, Svalbard.

Co-Author on Poster Presentation: The Physical and Chemical Controls on the Behaviour of Cryospheric Mercury.

Activities

E. Steinnes

24th TFM ICP Vegetation, Rapperswil, Switzerland, Jan. 31 – Feb. 3, 2011.

Co-Author on Lecture on: Is it possible to estimate Atmospheric Deposition of heavy Metals by Analysis of Terrestrial Mosses?

“Bekymret for elgen i Sør-Norge”. Interview in the Newspaper “Aftenposten”, Feb. 7, 2011.

“Elgen får helsesjekk”. Interview in the Newspaper “Agerposten”, Feb. 8, 2011.

“Elgen i sør sykere enn elgen i nord”. Interview on TV; NRK Hedmark og Oppland, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on TV; NRK Sørlandet, Feb. 8, 2011.

“Nå skal elggåten løses”. Interview on Radio; NRK Nyheter, Feb. 8, 2011.

“Skal sjekke sør-norsk ”pingle-elg”. Interview in the Newspaper “Smaalenenes avis”, Feb. 8, 2011.

“Sunnere elg i nord”. Interview in the Newspaper “Finnmark Folkeblad”, Feb. 8, 2011.

“Helseproblemer hos skogens konge”. Interview on Internet, Feb. 9, 2011.

“Friskere elg i nord”. Interview in the Newspaper “Finnmarken”, Feb. 11, 2011.

“Er de norske elge påvirket af tungmetaller?”. Interview on Internet (Danmarks Jægerforbund), March 6, 2011.

12th International Conference on Modern Trends in Activation Analysis, College Station, Texas, USA, March 13 – 18, 2011.

Co-Author on Lecture on: Atmospheric Supply of Halogens and Selenium from Ocean to Land Studied by Neutron Activation Analysis.

Workshop “Sphagnum Peatlands and Long-Range Transboundary Air Pollution”, Montbeliard, France, June 17 – 19, 2011.

Lecture on: Role of Peat Cores in Studies of Atmospheric Deposition of Pollutants in Norway.

AIRMON 2011: 7th International Symposium on Modern Principles of Air Monitoring and Biomonitoring, Loen, Norway, June 19 – 23, 2011.

Lecture on: Metal Pollution at Selected Norwegian Industry Sites Studied by the Moss Technique: An Update.

The 10th International Conference on Mercury as a Global Pollutant, Halifax, Nova Scotia, Canada, July 24 – 29, 2011.

Lecture on: Increase of Hg with Northern Latitude in Norway.

Workshop “Antimony 2011”, Jena, Germany, Aug. 21 – 24, 2011.

Lecture on: Antimony Deposition in Norway in Time and Space.

2nd International Conference on Air Pollution and Control, Antalya, Turkey, Sep. 19 – 23, 2011.

Co-Author on Lecture on: Three Decades of Atmospheric Metal Deposition in Norway as Evident from Analysis of Moss Samples.

Workshop “Impact of Climate Change on Biogeochemical Cycles and Ecosystems in Arctic - Antarctic Polar Seas”, NTNU, Trondheim, Oct. 1 – 2, 2011.

Lecture on: Atmospheric Transfer from the Marine Environment to Land of Elements Essential to Man: Possible Role of the Arctic/Antarctic Oceans

Workshop “Chemistry and Climate: New challenges for an old Discipline”, Tromsø, Norway, Oct. 3 – 4, 2011.

Lecture on: Atmospheric Transport of Important Trace Elements from Ocean to Land: How Might it be Affected by Climate Change?



*The data collecting system at Ny Ålesund. © T. Berg**

R.B. Strand

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.

Co-Author on Lecture on: Synthesis and Application of new Chiral N-Heterocyclic Carbenes.

Co-Author on Poster Presentation: “Preparation of a new Chiral N-Heterocyclic Carbene.

International Organometallic Conference (OMCOS16), Shanghai, China, July 23 – 28, 2011.
Co-Author on Poster Presentation: Synthesis and Application of Chiral N-Heterocyclic Carbene Precursors.

T. Thvedt

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.
Co-Author on Lecture on: Enantioenriched 1-Aryl-2-Fluoroethylamines. Efficient Lipase Catalysed Resolution and Limitations to the Mitsunobu Inversion Protocol.

17th European Symposium on Organic Chemistry, University of Crete, Hersonissos, Crete, July 10 – 15, 2011.
Co-Author on Poster Presentation: Chiral Derivatives of Butenafine and Terbinafine: Synthesis and Antifungal Activity.

M. Voldsund

Carbon Capture and Storage Summer School, Longyearbyen, Spitzbergen, Aug. 21 – 28, 2010.

A. Zaidi

Conference “26. Organisk kjemisk vintermøte”, Skeikampen, Norway, Jan. 6 - 9, 2011.
Co-Author on Poster Presentation: Study of Surface Properties of Highly Unsaturated Conjugated Soaps.

16th International Symposium on Carotenoids, Crakow, Poland, July 17 – 22, 2011.
Co-Author on Poster Presentation: Study of Surface Properties of Highly Unsaturated Conjugated Soaps.

M. Zeeshan

16th International Symposium on Carotenoids, Crakow, Poland, July 17 – 22, 2011.
Co-Author on Poster Presentation: Carotenoid as antireductants.
Co-Author on Lecture on: Synthesis of longest Chain Carotenoids with 27 double Bonds

P. – O. Åstrand

“Landsmøte I kjemi”, Lillestrøm, Norway, Sep. 28 – 29, 2011.
Lecture on: New Materials for Electrical Insulation: a Case for Quantum Chemistry?



*The mooring mast for the airship "Norge", from Roald Amundsen's flight to the North Pole in 1926. © T. Berg**

Graduate Students

Spring Examination

Course no	Course title (credits)	Lectures and exercise coordinators	Candidates/Passed
RFEL1001	Natural Science and World Views (7,5)	Reidar Edvald Stølevik, Jon Kristian Skei	43/34
KJ1020	Organic Chemistry (15)	Vassilia Partali	149/108
KJ1042	Basic Thermodynamics with Laboratory (7,5)	Signe Kjelstrup	98/74
KJ2022	Spectroscopic Methods in Organic Chemistry (7,5)	Nebojsa Simic	26/24
KJ2044	Physical Methods in Structural Chemistry (7,5)	Morten Bjørgen	4/4
KJ2051	Analytical Chemistry, Advanced Course (7,5)	Øyvind Mikkelsen, Florinel Gabriel Banica	11/11
KJ2053	Chromatography (7,5)	Rudolf Schmid	32/29
KJ2070	Environmental Chemistry (15)	Torunn Berg, Trond Peder Flaten	31/2
KJ2071	Environmental Chemistry, Introductory Course (7,5)	Torunn Berg	23/23
KJ3000	Organic Medicinal and Pharmaceutical Chemistry (7,5)	Derek James Chadwick	22/21
KJ3005	Organometallic Compounds in Organic Synthesis (7,5)	Odd Reidar Gautun	4/4
KJ3055	Analytical Atomic Spectrometry (7,5)	Florinel Gabriel Banica	5/5
KJ8105	Organometallic Compounds in Organic Synthesis (7,5)	Odd Reidar Gautun	3/3
KJ8106	Advanced Organic Chemistry (7,5)	Per Henning Carlsen	1/1
KJ8205	Advanced Molecular Modelling (7,5)	Per-Olof Åstrand	4/4
KJ8208	Advanced Irreversible Thermodynamics (7,5)	Signe Kjelstrup	4/4
TKJ4111	Organic Chemistry, Advanced Course	Bård Helge Hoff	15/10
TKJ4130	Organic Synthesis, Laboratory (7,5)	Bård Helge Hoff Vassilia Partali	15/15
TKJ4135	Organic Synthesis, Advanced Course (7,5)	Anne Fiksdahl	16/14
TKJ4170	Quantum Chemistry (7,5)	Henrik Koch	6/5
TKJ4175	Chemometrics, Basic Course (7,5)	Bjørn Kåre Alsberg	11/11
TKJ4190	Physical Chemistry, Project Work (7,5)	-	4/4
TKJ4215	Statistical Thermodynamics in Chemistry and Biology (7,5)	Per-Olof Åstrand	33/28



In Svalbard, remember always to carry a gun – for your own protection

Autumn examination

Course no.	Course title (credits)	Lectures and exercise coordinators	Candidates/Passed
KJ1000	General Chemistry (15)	Kolbjørn Hagen, Torbjørn Ljones	194/175
KJ1030	Inorganic Chemistry (15)	Torbjørn Ljones, Tina Kristiansen	46/44
KJ1041	Chemical Bond, Spectroscopy and Kinetics (7,5)	Henrik Koch	81/65
KJ2050	Basic Course (7,5)	Øyvind Mikkelsen, Florinel Gabriel Banica	32/32
KJ2090	Chemistry Education -, Chemistry Dissemination (7,5)	Annette Lykknes	7/7
KJ3021	Nuclear Magnetic Resonance Spectroscopy (7,5)	Nebojsa Simic	12/8
KJ3050	Marine Organic Environmental Chemistry (7,5)	Øyvind Mikkelsen	9/9
KJ3053	Analytical Methods for Industrial- and Environmental Monitoring (7,5)	Øyvind Mikkelsen	11/11
KJ3058	Analytical Chemical Separation Techniques (7,5)	Rudolf Schmid	7/7
KJ3070	Advanced Aquatic Chemistry (15)	Trond Peder Flaten	14/14
KJ3071	Applied Geochemistry (7,5)	Rolf Tore Ottesen	19/19
KJ8056	Chemical Sensors and Biosensors (7,5)	Florinel Gabriel Banica	5/5
KJ8058	Analytical Chemical Separation Techniques (7,5)	Rudolf Schmid	1/1
KJ8070	Advanced Aquatic Chemistry (15)	Trond Peder Flaten	1/1
KJ8206	Advanced Quantum Chemistry (7,5)	Henrik Koch	2/2
KJ8902	Molecular Modelling (7,5)	Per-Olof Åstrand	2/2
RFEL3093	Episodes from the History of Science (7,5)	Annette Lykknes	2/2
TKJ4102	Basic Organic Chemistry (7,5)	Odd Reidar Gautun	87/77
TKJ4180	Physical Organic Chemistry (7,5)	Svein Jacob Kaspersen	14/8
TKJ4200	Irreversible Thermodynamics (7,5)	Signe Kjelstrup	16/16
TKJ4205	Molecular Modelling (7,5)	Per-Olof Åstrand	13/10
TKJ4510	Physical Chemistry, Specialization Project	Bjørn Kåre Alsberg	2/2
TKJ4515	Physical Chemistry, Specialization Course (7,5)	Signe Kjelstrup	2/2
TKJ4520	Organic Chemistry, Specialization Project (15)	Odd Reidar Gautun	
TKJ4525	Organic Chemistry, Specialization Course (7,5)	Anne Fiksdahl	8/8

Graduate Students

Re-sit examination

Course no.	Course title (credits)	Candidates/Passed
RFEL1001	Natural Science and World Views (7,5)	4/3
KJ1000	General Chemistry (15)	14/9
KJ1020	Organic Chemistry (15)	6/4
KJ1030	Inorganic Chemistry (15)	5/3
KJ1040	Physical Chemistry (15)	4/1
KJ1041	Chemical Bond, Spectroscopy and Kinetics (7,5)	12/5
KJ1042	Basic Thermodynamics with Laboratory (7,5)	4/2
KJ2022	Spectroscopic Methods in Organic Chemistry (7,5)	2/2
KJ2044	Physical Methods in Structural Chemistry (7,5)	1/1
KJ2051	Analytical Chemistry, Advanced Course (7,5)	1/1
KJ2053	Chromatography (7,5)	3/2
KJ2070	Environmental Chemistry (15)	1/1
KJ3021	Nuclear Magnetic Resonance Spectroscopy (7,5)	4/4
KJ3050	Marine Organic Environmental Chemistry (7,5)	1/1
KJ3055	Analytical Atomic Spectrometry (7,5)	1/1
KJ3058	Analytical Chemical Separation Techniques (7,5)	1/1
KJ3070	Advanced Aquatic Chemistry (15)	3/3
KJ3071	Applied Geochemistry (7,5)	2/2
TKJ4102	Basic Organic Chemistry (7,5)	9/8
TKJ4111	Organic Chemistry, Advanced Course (7,5)	3/2
TKJ4135	Organic Synthesis, Advanced Course (7,5)	1/1
TKJ4160	Basic Physical Chemistry and Laboratory (15)	1/1
TKJ4166	Chemical Bond Theory and Spectroscopy (7,5)	1/0
TKJ4170	Quantum Chemistry, Advanced Course (7,5)	1/0
TKJ4180	Physical Organic Chemistry (7,5)	6/3
TKJ4215	Statistical Thermodynamics in Chemistry and Biology (7,5)	2/2



Kongsfjorden. Ny Ålesund with a cruise ship in the harbour

Technology students

3. year (MTKJ)

Barsnes, Anne Helene
Lund, Ingvild Teigen
Moen, Ingri Ullestad
Skjelbred, Kristin Marie
Skreddernes, Vilhelm

4. year (MTKJ)

Glansberg, Karin Märta
Hauge, Hans Henrik R.
Hogsnes, Morten
Holden, Mia Cathrine Hellandsjø
Johansen, Maren Teresa
Kolstad, Aleksander
Lauvås, Marie Jacobsen
Myhre, Rolf Heilemann
Rydså, Line
Skjønsvik, Ellen Martine
Solemslie, Henrik Winther
Strand, Mikael

5. year (MTKJ)

Bergersen, Amund Dolva
Blakstad, Guro
Bøe, Maren Seljenes
Ellila, Georg
Elnan, Jørund
Gulbrandsen, Tore Aarhus
Han, Jin
Isaksen, Stian Moe
Kaur, Maya
Larsen, Synne
Surdal, Cecilie
Tveeikrem, Marit Elise Endresen
Vo, Mong Truc

Master students in progress

Chemistry (MKJ)

Bakka, Thomas Aleksander
Berge, May-Britt
Blomli, Janne Yttermo
Borkowska, Zuzanna
Egeness, Mari Jystad
Emdal, Martin Folke
Haugland, Marius Myreng
Henriksen, Stine
Hoholm, Rebecca Stavrum
Høiås, Morten Juul
Johansen, Frank Edvardsen
Karlsen, Silje Sæther
Kirkemo, Fredrik Nestande
Larsen, Rune
Lindgjerdet, Per Magnus
Løvås, Jim Andre
Madland, Eva
Mikalsen, Ragni Fjellgaard
Moen, Ingvill Marie
Noreng, Mona Skagseth
Opsahl, Anette
Ophaug, Camilla
Rise, Astrid Toftaker
Simensen, Jan Tore
Sørensen, Lisbet
Van der Wijst, Cornelis
Yttervik, Johan Hatling
Aaen, Ingrid
Aakre, Eva Kristin
Aakre, Iselin

Environmental toxicology and chemistry (MSENVITOX)

Hansen, Ailin Falkmo
Hunnestad, Annie Vera
Isaksen, Marte Eik
Larsen, Katrine Hervik
Nordum, Mats
Ramzan, Muhammad
Rusti, Elise Hermo
Sanchez, Nicolas
Trefjord, Terese

Master of Science Education (MLREAL)

Brekke, Elisabeth Raknes
Børseth, Beate
Eidem, Bjørn
Elgaaen, Christian
Klungvik, Elina
Kongsvik, Marita Kjøsnes
Pettersen, Ann-Mari
Særslund, Anne Lene

Post Graduate Students

The following ph.d. projects are in progress:

Student	Title	Thesis advisor
Badina, Aderonke	Efficient production of fuels from biomass - The use of microwave and hydrolic enzymes in processing of biomass.	Bård Helge Hoff
Bugge, Steffen	Heteroaromatic compounds as new anticancer agents, diagnostic tools, and protozoal agents.	Bård Helge Hoff
Bøyesen, Katrine	Combined Raman, X-ray Absorption, Scattering and diffraction studies on nanoparticulate VOx species in micro and mesoporous systems for the selective oxidation of propene and propane.	Karina Mathisen
Davari, Nazanin	Molecular modeling of breakdown processes in electrically insulating liquids.	Per-Olof Åstrand
Flatberg, Arnar	Simulation of microarray experiments and protsomic 2D gel electrophoresis.	Bjørn K. Alsberg
Forselv, Stian	Catalytic conversion of 2nd generation biomass to liquid fuels over nanostructured hierarcial solids.	Karina Mathisen
Gebremariam, Kidane Fanta	Analytical methods for art objects investigation	Lise Kvittingen
Gerontas, Apostolos	A history of the development of column chromatography: From Tswet to HPLC.	Annette Lykknes
Hjertenæs, Eirik	Quantum chemical calculations on sodium-graphite systems and development of a computational method utilizing non-orthogonal Slater Determinants.	Henrik Koch
Iftekhar, Shafia	Trace metals and natural organic matters in rivers.	Torunn Berg
Karlsen, Morten	Synthesis of ¹³ C-labelled standards for analysis of narcotics.	Bård Helge Hoff
Kaspersen, Svein Jacob	New pyrrolo, thieno and furopyrimidine targeting tyrosine kinases (cancer) and protozoas: synthesis and bioactivity.	Bård Helge Hoff
Kristiansen, Tina	Aerogels: A new class of materials for catalytic purposes.	David G. Nicholson
Kumelj, Tjasa	Free energy calculations of ligand-protein interactions.	Per-Olof Åstrand
Lervik, Anders	Energy transfer in biomolecular motors.	Signe Kjelstrup
Løkken, Torbjørn Vegard	Analysér av vannduggpunkt og hydro- karbonduggpunkt i naturgass. (Determination of water dewpoint and hydrocarbon dew- point in natural gas.)	Rudolf Schmid
Martinsen, Morten	Development of an on-line monitoring platform and procedure for rapid environmental and process monitoring of heavy oil extraction operations and industrial activity.	Øyvind Mikkelsen

Post Graduate Students

Student	Title	Thesis advisor
Mekki, Miriam	Development and application of response methods for large molecular systems.	Henrik Koch
Melnes, Silje	Rational drug design synthesis of potential selective inhibitors of tyrosin kinase 2.	Odd Reidar Gautun
Mohsin, Muhammad Ali	Surface functionalization by bio-organic materials.	Florinel G. Banica
Nordløkken, Marit	Spormetaller i hjortedyr i Norge. (Trace of elements in Norwegian deer).	Torunn Berg
Raju, Rajesh	Optically active amphiphiles and artificial cells.	Odd Reidar Gautun
Sandru, Eugenia-Mariana	Synthese av høy umettete bioorganiske forbindelser. (Synthesis of highly unsaturated bioorganic compounds.)	Vassilia Partali
Saepurahman	Spectroscopic studies of zeolites and zeolite facilitated oxygenate/hydrocarbon conversion reactions.	Morten Bjørgen
Sandbakk, Katrine Dretvik	Reverse electrodialysis - DC power from mixing of sea and river water.	Signe Kjelstrup
Simic, Anica	Trace elements and persistent organic pollutants (POPs) in blood serum samples from the Nord-Trøndelag health study (HUNT) and the possible role of trace elements in type 2 diabetes.	Trond Peder Flaten
Skorpa, Ragnhild	A thermodynamic base for reaction kinetics. Studied by non-equilibrium molecular dynamics simulations.	Signe Kjelstrup
Strand, Ragnhild B.	Heterocyclic synthetic chemistry based on nitropyridine derivatives.	Anne Fiksdahl
Syed, Majid Bukhari	Isolation and structure elucidation of natural Bioactive molecules of plant origin.	Nebojsa Simic
Takla, Marit	Methods to utilize waste heat in the ferro alloy industry.	Signe Kjelstrup
Tesfamariam, Gebrekidan M.	Enhancing the quality and relevance of chemistry teacher training education in Ethiopia: A study of the use and impact of small-scale, low cost experiments at Mekelle University.	Annette Lykknes
Thvedt, Thor Håkon Krane	Enzymatic resolution coupled with in-situ racemisation for production of enantiopure amines. Application of the building blocks in preparation of potential antifungal compounds.	Bård Helge Hoff
Zaidi, Asma	Synthesis of highly unsaturated amino acids.	Vassilia Partali
Zeeshan, Muhammad	Optical resolution by fractional aggregation.	Vassilia Partali
Voldsund, Mari	Entropy production in process equipment.	Signe Kjelstrup
Weggeberg, Hanne	Metal characterization of different size fractions. of airborne particulate matter and adverse health effects in humans.	Trond Peder Flaten

Post Graduate Students

MSc in Chemistry (MKJ)

Borkenhagen, Marius	Metallfordelingen i elveossedimenter fra elver med utløp i Trondheimsfjorden
Supervisor:	Professor Øyvind Mikkelsen
Examiners:	Professor Emeritus Knut Henning Schrøder Stipendiat Morten Martinsen
Forselv, Stian	An In-situ FTIR Study of the Methanol to Hydrocarbons Reaction over Zeolite Catalysts
Supervisor:	Professor Morten Bjørgen
Examiners:	Associate Professor, Dr. scient Stian Svelle, UiO Professor David Graham Nicholson
Heggøy, Anette	Does deposition of atmospheric Mercury in Arctic regions lead to elevated uptake of Mercury to marine Phytoplankton?
Supervisors:	Professor Torunn Berg Stipendiat Ida Beathe Øverjordet
Examiners:	Research Scientist Katrine Aspmo Pfaffhuber, NILU Associate Professor Rudolf Schmid
Hjertenæs, Eirik	Part A: Investigations of Sodium-Graphite Interaction Part B: Structures and conformational Energies of 1,2-Dihaloethane and Silane Analogues Part C: Development of Ab Initio computational Methods based on non-orthogonal Slater Determinants
Supervisor:	Professor Henrik Koch
Examiners:	Professor, Dr. scient Knut I. Børve, UiB Professor Bjørn Kåre Alsberg
Martinsen, Morten	Fremstilling av nye ligander for asymmetrisk katalyse
Supervisor:	Associate Professor Odd Reidar Gautun
Examiners:	Associate Professor, Dr. scient Eirik Sundby, HiST Professor Per Henning Carlsen
Nauste, Kristian Bunkholt	Arktiske elver på Svalbard: Konsentrasjon og korrelasjon av metaller
Supervisors:	Professor Øyvind Mikkelsen Professor Torunn Berg
Examiners:	Professor Emeritus Knut Henning Schrøder Professor Emeritus Reidar Stølevik
Ohm, Ragnhild Gaard	Potensielle inhibitorer av tyrosin kinase 2: Syntese av viktige mellomprodukter
Supervisor:	Associate Professor Odd Reidar Gautun
Examiners:	Associate Professor, Dr. scient Eirik Sundby, HiST Professor Per Henning Carlsen
Strandberg, Trond	Flukser av kvikksølv mellom snø/jord og atmosfære
Supervisors:	Professor Torunn Berg Senior Scientist Lars Robert Hole, Meteorologisk Institutt
Examiners:	Research Scientist Anne Orderdalen Steen, NIVA Associate Professor Florinel Gabriel Banica

MSc in Chemistry/Technology. (MTKJ)

Bugge, Steffen Supervisor: Examiners:	Bruk av koblingskjemi i fremstilling av bioaktive tienopyrimidiner Associate Professor Bård Helge Hoff Research Scientist, Dr.Ing. Harald Svendsen, EPAX Associate Professor Bård Helge Hoff
Kaasa, Kristin Supervisor: Examiners:	Fremstilling av kirale stoffer mot humane sopp-plager Associate Professor Bård Helge Hoff Cand.real Reinert Fure, Borregaard Associate Professor Bård Helge Hoff
Solvang, Tina Supervisor: Examiners:	Fremstilling av et kiralt triazoliumbasert NHC-salt og anvendelse i asymmetrisk syntese Professor Anne Fiksdahl Associate Professor Tore Lejon, UiT Professor Anne Fiksdahl
Tungen, Jørn Eivind Supervisors: Examiners:	Fremstilling av propargylestere og anvendelse i gullkatalyserte reaksjoner Professor Anne Fiksdahl Associate Professor Tore Lejon, UiT Professor Anne Fiksdahl

MSc in Education, chemistry (MLREAL)

Andersen, Marthe Kristin Supervisor: Examiners:	Studie av naturlig organisk materiale (NOM) og utvalgte metaller i naturlig vann - Case-studie av bekker i nedslagsfeltene til Jonsvatnet, Trondheim Professor Øyvind Mikkelsen Professor Emeritus Knut Henning Schrøder
Buraas, Ida Kristine Supervisors: Examiners:	Antimon, arsen, barium, bly, jern, kadmium, kobber, krom, kvikksølv, nikkel, sink, tinn og titan i interiørmaling Professor Trond Peder Flaten Professor II Rolf Tore Ottesen Research Scientist Morten Jartun, OSL Gardermoen
Paulsrud, Lars Evensen Supervisors: Examiners:	PCB i betong Associate Professor Trond Peder Flaten Professor II Rolf Tore Ottesen Research Scientist Morten Jartun, OSL Gardermoen
Pedersen, Lars Størseth Supervisor: Examiners:	Studie av korrelasjoner og sesongvariasjoner av metaller og oppløst organisk karbon i vassdrag Professor Øyvind Mikkelsen Professor Emeritus Knut Henning Schrøder

Post Graduate Students

MSc in Environmental toxicology and chemistry (MSENVITOX)

Alston, John Fraser	Identification of PCB-Sources and Evaluation of the Risk of Spreading in Puddefjorden, Bergen
Supervisors:	Professor Trond Peder Flaten Professor II Rolf Tore Ottesen
Examiners:	Research Scientist Morten Jartun, OSL Gardermoen Professor Torbjørn Ljones
Bechmann, Pernille	Kartlegging og overvåking av tungmetaller i oljesandområder
Supervisors:	Professor Øyvind Mikkelsen Senior Researcher Christian Collin-Hansen, Statoil
Examiners:	Professor Emeritus Knut Henning Schrøder Professor Torunn Berg
Eskeland, Maren	A study of elements and their possible mobilization in Athabasca SAGD crude oil and sediments from an aquifer used as drinking water supply in northeastern Alberta, Canada
Supervisors:	Professor Øyvind Mikkelsen Senior Researcher Christian Collin-Hansen, Statoil
Examiners:	Professor Emeritus Knut Henning Schrøder Professor Trond Peder Flaten
Haakseth, Anne-Britt	A baseline study of vegetation as absorbents for heavy metals near an oil sand extraction facility
Supervisors:	Professor Øyvind Mikkelsen Senior Researcher Christian Collin-Hansen, Statoil
Examiners:	Professor Emeritus Knut Henning Schrøder Associate Professor Rudolf Schmid
Høydal, Liv Mari Brunstad:	Chemical investigations of heavy crude oil under influence of added microorganisms
Supervisors:	Associate Professor Rudolf Schmid Senior Researcher Christian Collin-Hansen, Statoil Laboratory Head Kolbjørn Zahlsen, SINTEF Materialer og kjemi Research Manager Hans Kristian Kotlar, Statoil
Examiners:	Senior Researcher Liv-Guri Faksness, SINTEF Materialer og kjemi Professor Torunn Berg
Kamalia, Uswatun Hasanah Isna	Identification of Sources for Illegal Oil Spills by Using GC-MS (Gas Chromatography and Mass-Spectrometry) Databases and Multivariate Statistics
Supervisors:	Professor Bjørn Kåre Alsberg Senior Researcher Per Johan Brandvik, SINTEF Materialer og kjemi
Examiner:	Associate Professor, Dr. scient Bjørn Grung, UiB Professor Øyvind Mikkelsen
Liu, Zhucheng	Impact of microorganisms on extra heavy crude oil for improving energy efficiencies
Supervisors:	Professor Trond Peder Flaten Senior Researcher Christian Collin-Hansen, Statoil
Examiner:	Research Scientist Sidsel Markussen, SINTEF Materialer og kjemi Professor Torbjørn Ljones
Melting, Kine	Biodegradation of Crude Oil and Identification of Polar Metabolite Compounds
Supervisors:	Associate Professor Rudolf Schmid Research Scientist Andrew Booth, SINTEF Materialer og kjemi Senior Researcher Odd Gunnar Brakstad, SINTEF Materialer og kjemi
Examiners:	Senior Researcher Christian Collin-Hansen, Statoil Professor Torunn Berg

Slinde, Gøril Aasen	"Bottom up Ocean Acidification". The Impact of CO2 Seepage from Sub-Seabed Storage Sites on the Mobility and Transformation of Iron, Manganese and Cobalt in Water and the Water-Sediment Interphase
Supervisors:	Professor Øyvind Mikkelsen Researcher Murat V. Ardelan
Examiners:	Professor Emeritus Knut Henning Schrøder Professor Torunn Berg
Sundeng, Katrine Helen	"Bottom up Ocean Acidification". The Impact of CO2 Seepage from Sub-Seabed Storage Sites on the Mobility and Transformation of Cerium, Lanthanum, Lead, Aluminium, Chromium, Arsenic and Uranium in Water and the Water-Sediment Interphase
Supervisors:	Professor Øyvind Mikkelsen Researcher Murat V. Ardelan
Examiners:	Professor Emeritus Knut Henning Schrøder Professor Torunn Berg

MSc in Natural resources management (MSNARM)

Som, Bozume	Can trace elements in Moose (Alces alces) feed explain regional health differences?
Supervisors:	Professor, Dr.scient Torunn Berg Professor, Dr.ing. Trond Peder Flaten Stipendiat Marit Nordløkken Professor Emeritus Eiliv Steinnes
Examiners:	Hans Christian Pedersen Associate Professor Rudolf Schmid

Ph.d. in Chemistry

Chu, Yunhan	Developments of Methods for De novo Design of Functional Drugs and Catalyst Compounds
Trial lecture	Proteomics in drug design and discovery
Supervisor	Professor Bjørn Kåre Alsberg
Evaluation committee	Scientist Kristin Tøndel, Dept. of Mathematical Sciences and Technology, Norwegian University of Life Sciences Professor Michael Sjöström, University of Umeå, Sweden Professor Per-Olof Åstrand, Department of Chemistry, NTNU
Esmurziev, Aslan	Chemo-enzymatic synthesis of fluorinated carbohydrate derivatives
Trial lecture	Fluorine in Pharma and drug design
Supervisor	Professor Bård Helge Hoff
Evaluation committee	Professor Stefano Servi, Politecnico di Milano, Dipartimento di Chimica, Italy Associate Professor. Dr. Birte Sjørnes, Avdeling for ingeniørfag, Høgskolen i Østfold Professor Vassilia Partali, Department of Chemistry, NTNU.
van der Ham, Leen	Improving the Second law efficiency of a cryogenic air separation unit
Trial lecture	The thermodynamics of CO2 capture processes
Supervisor	Professor Signe Kjelstrup
Evaluation Committee	Professor dr. André Bardow, RWTH Aachen, Lehrstuhl für Technische Thermodynamik. Prof. II dr. ing. Geir Owren, Statoil Forskningscenter Professor Henning Struchtrup, Schwerpunkt Differentialgleichungen und Dynamische Systeme, Universität Hamburg Prof. II dr.ing. Chief Scientist Petter Nekså, SINTEF Petroleum and Energy, Department of Energy Processes

Post Graduate Students

Steen, Anne Orderdalen	Environmental cycling of atmospheric mercury in the Arctic — Chemical fractionation, deposition and post depositional fate
Trial lecture	Effects of climate change on toxics in the Arctic
Supervisor	Professor Torunn Berg
Evaluation committee	Chief scientist PhD Eric M. Prestbo, Research and development Tekran instruments corporation, USA Director Phd Katarina Gårdfeldt, Göteborgs miljövetenskapliga centrum (GMV), Chalmers tekniska högskola. Sweden Professor Trond Peder Flaten, Department of Chemistry, NTNU
Aarhaug, Thor Anders	Assessment of PEMFC durability by effluent analysis
Trial lecture	Mechanical degradation of perfluorinated membranes and mitigation strategies
Supervisor	Professor Signe Kjelstrup
Evaluation Committee	Dr. Gaby Janssen, Energy Research Centre of the Netherlands ECN. Dr.ing. Rune Halseid, Leading Advisor Upstream Process System Design, Statoil ASA Professor Øyvind Mikkelsen, Dept. of Chemistry, NTNU

Student Exchange from NTNU, Department of Chemistry 2011

Name	Specialization	Level	Institution
Dolva, Amund	MTKJ-Org.chem.	MSc, 5th yr	Eidgenössische Technische Hochschule Zürich, Switzerland
Ellila, Georg	MTKJ-Phys.chem	MSc, 4th yr	Danmarks Tekniske Universitet, Denmark
Gulbrandsen, Tore Aarhus	MTKJ-Org.chem .	MSc, 4th yr	University of Helsinki, Finland
Hauge, Hans Henrik	MTKJ-Org.chem.	MSc, 4th yr	Technische Universität München, Germany
Glansberg, Karin Märta	MTKJ-Org.chem.	MSc, 4th yr	Eidgenössische Technische Hochschule Zürich, Switzerland
Kaur, Maya	MTKJ-Org.chem.	MSc, 4th yr	Universidad Politécnica de Valencia, Spain
Rydså, Line	MTKJ-Org.chem .	MSc, 4th yr	Uppsala Universitet, Sweden
Surdal, Cecilie	MTKJ-Org.chem .	MSc, 4th yr	The University of Western Australia, Australia

Student exchange to NTNU, Department of Chemistry

Name	Institution
Bagnoli, Luigi	Politecnico di Torino, Italy
Blijleven, Esther	Hogeschool Leiden, Netherlands
Granger, Paul	University of Rouen, France
Hansen, Christine	Georg August University Göttingen, Germany
Moss, Katharina	University of Hamburg, Germany
Zolubas, Giedrius	Vilnius University, Lithuania

Academic Staff

Organic Chemistry



Group Leader
Associate Professor,
Dr.scient
Bård Helge Hoff



Adjunct Professor, Ph.D.
(Oxford) . Derek Chadwick



Professor, Dr.ing.
Anne Fiksdahl



Professor, Ph.D. (Buffalo).
Per Carlsen



Associate Professor, Dr.ing.
Odd Reidar Gautun



Associate Professor, Ph.D.
(Niš), Nebojsa Simic



Professor, Dr.rer.nat.
(Fribourg). Vassilia Partali

Staff

Physical Chemistry



Group Leader
Professor, Dr.scient.
Bjørn Alsberg



Professor, Dr.techn.
Signe Kjelstrup



Professor, Ph.D. (Lund)
Per-Olof Åstrand



Adjunct Professor, Dr.philos.
(Utrecht). Dick Bedeaux



Professor, Ph.D. (Århus).
Henrik Koch



Associate Professor. Ph.D.
Morten Bjørgen



Professor, Ph.D.
Torbjørn Ljones

Environmental and Analytical Chemistry



Group Leader
Professor, Dr.Scient
Øyvind Mikkelsen



Professor, Dr.scient.
Lise Kvittingen



Associate Professor, Dr.rer.nat.
(Zürich). Rudolf Schmid



Associate Professor, Dr.ing.
Florinel G. Banica



Associate Professor, Ph.D.
Karina Mathisen



Associate Professor, Ph.D.,
Annette Lykknes



Professor, Dr.scient.
Torunn Berg



Professor, Ph.D. (London)
David Nicholson



Professor, Dr.ing.
Trond Peder Flaten



Adjunct Professor
Rolf Tore Ottesen

Staff

Administrative staff



Head of department
(*January - October 2011*)
Arne Petter Ratvik



Administrative manager
Lena Frostad



Higher executive officer
Bjørn Syvertsen



Head of department
(*November 2011 -*)
Marie-Laure Olivier



Executive officer
Inger Marie Frøseth



Executive officer
Thea Berg Fines



Higher executive officer
Ingrid Kristine Tømmerdal

Technical staff



Staff engineer
Stein Almo



Head engineer
Susana Villa Gonzalez



Senior engineer
Tron Rolfsen



Head engineer
Trine Naalsund Andreassen



Head engineer
Julie Jackson



Staff engineer
Gunnar Svare



Staff engineer
Julie Asmussen



Staff engineer
Nina Klausen



Staff engineer
Roger Aarvik



Head engineer
Syverin Lierhagen

Staff

Scientific Assistants

Andreassen, Trine N.
Asmussen, Julie
Bøyese, Katrine Lie
Davari, Nazanin
Forselv, Stian
Gebremariam, Kidane Fanta
Gerontas, Apostolos
Gonzalez, Susana
Kaspersen, Svein Jacob
Lystvet, Sina Maria
Martinsen, Morten
Mekki, Miriam
Saepurahman
Simic, Anica
Skorpa, Ragnhild
Takla, Marit
Voldsund, Mari
Volynkin, Andrey
Vågenes, Birgitte
Aaseng, Jon Erik

Demonstrators

Andersen, Marthe K.
Blakstad, Guro
Brattås, Per L. Lindstad
Braadland, Peder R.
Bukhari, Syed Majid
Bøe, Maren Seljenes
Coucheron, David
Courtade, Gaston
Driveklepp, Malin Å.
Eggen, Marit
Emdal, Martin Folke
Eraker, Øyvind
Espedal, Camilla
Evensen, Agnete Sion
Finstad, Anne
Gilde, Maria
Glas, Sophie
Guljaeva, Ksenia
Gullbrekken, Øystein
Hammersland, Kine
Haugland, Marius M.
Heidelberg, Cecilie Thon
Hoholm, Rebekka S.
Holager, Cathrine
Holden, Mia C. Hellandsjø
Hunnestad, Annie Vera
Høiås, Morten Juul
Iftekhar, Shafia
Iversen, Ole M. Kålås
Johansen, Frank
Johansen, Maren
Kirkemo, Fredrik N.
Kirste, Karsten
Kolstad, Aleksander
Krokstad, Julie Stene
Kummen, Ingrid
Larsen, Synne
Lauvås, Marie J.
Lee, Hyewon
Lørdøen, Silje
Løvås, Jim Andre
Martinsen, Morten
Midttun, Elise Strøm
Mikalsen, Ragni F.
Myhre, Rolf Heilemann
Maaland, Astri Fjelde
Nordum, Mats
Næss, Isabel S.
Ohm, Ragnhild
Oliver, Emil Johan
Olsen, Fredrik K.
Olsen, Gerhard
Risa, Kamilla
Sjøbakk, Bente
Strandberg, Trond
Særslund, Anne Lene
Sørensen, Lisbeth
Sørli, Kaja
Thorbjørnsen, Susanna H.
Ueland, Åsmund S.
Vo, Truc Mong
Zaidi, Asma
Zeeshan, Muhammad
Øyås, Ove
Aakre, Iselin

Guest professors/researchers/lecturers

Miguel Rubi	29 March – 1 April, 2011
Dr. Justin Hargreaves, Department of Chemistry, University of Glasgow “Interstitial Nitrides as Reservoirs of Activated Nitrogen”	24 May, 2011
Dr. Ryan Bell, Vancouver Island University (VIU), Nanaimo B.C., Canada: “Detection of Dissolved Gases and VOCs in the Marine Environment by Underwater Mass Spectrometry”	14 Sept., 2011
Professor Iwan Rhys Morus, Aberystwyth University, Wales, UK, Guest Lecturer in RFEL 3093/8093: “The Places of Victorian Experiment”	6 Oct., 2011
“The Theatre of Experiment: Performing the World of Victorian Physics”	7 Oct., 2011
Professor Nils Røll Hansen, University of Oslo Guest Lecturer in RFEL 3093/8093: “Genetikk og eugenikk: Biologi på 1900-tallet”	3 Nov., 2011



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Annual Report for Department of Chemistry 2011



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