



MEETS  
**MATH**  
**INDUSTRY**

WHAT CAN YOU DO  
WITH A PHD?

22-23 2016  
SEPT



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## Welcome

Dear Participant,

welcome to “Math meets Industry”. It brings together PhD students and faculty members from Norwegian Math departments and industry representatives. In the next two days you will hear keynote lectures highlighting challenges and success stories in collaboration between math and industry both from an academic and industrial perspective. On Thursday, we will have a session on math education, to discuss a math curriculum meeting the societal and industrial challenges of the 21st century. In the afternoon, PhD students from all Norwegian universities will present themselves and their achievements to a mixed audience from academia and industry during a poster session. The first day closes with a science slam for math PhD students moderated by Jo Rislien, followed by a joint dinner.

On Friday in addition to further keynote speakers we have a session about funding opportunities both in the Research council of Norway and EU Horizon 2020 complemented by the presentation of two European projects with strong involvement of university mathematicians and industry. The final session is a partnering event between academia and industry where we want to identify challenging new topics for a closer cooperation of both worlds.

We would like to acknowledge financial support of our sponsors, the Norwegian University of Science and Technology, the Research Council of Norway and the European Consortium for Mathematics in Industry, ECMI.

We look forward to an exciting workshop with interesting talks and lively discussions.

Kind regards,

Elena Celledoni, Jo Eidsvik, Dietmar Hömberg, Jon Kummen, Jo Røislien, Einar Rønquist  
(organizing committee)

## Thursday, September 22, 2016

<i>Room San Siro 3, 2nd floor</i>	
09:45 – 10:15	Registration
10:15 – 10:30	Welcome
10:30 – 11:10	<b>Asgeir Sørensen</b> (NTNU) (Chair: Elena Celledoni): Nothing is as practical as a good theory – From fundamental research to industry development
11:10 – 11:50	<b>Stig Faltinsen</b> (Danske Bank) (Chair: Brynjulf Owren): A random walk in financial risk management
EDUCATION SESSION (Chair: Jo Eidsvik)	
11:50 – 12:10	<b>Håkon Sandbakken</b> (DNVA, Oslo): VISTA - A choice between industry and academia?
12:10 – 12:40	<b>Yuriy Rogovchenko</b> (University of Agder): PIC-MATH program: preparing undergraduates for a successful career in industry
12:40 – 13:00	Discussion
13:00 – 14:00	<i>Lunch</i>
14:00 – 14:40	<b>Kathrine Frey Frøslie</b> (University of Oslo) (Chair: Bo Lindqvist): Statistics as a weapon for improving womens health
14:40 – 16:30	STUDENT POSTER PRESENTATIONS (Chair: Anne Kværnø) – Coffee Break –
16:30 – 17:20	<b>Chris Budd</b> (University of Bath), (Chair: Dietmar Hömberg) Does maths need industry or does industry need maths?

<i>Room Mesaninen, 3rd floor</i>	
17:30 – 19:30	<b>MATH SLAM</b> (Moderated by <b>Jo Røislien</b> , NTNU, Music: <b>Marius Thorvaldsen</b> ) <i>Contestants:</i> <b>Håkon Christopher Bakka</b> (NTNU) <b>Håvard Bjerkevik</b> (NTNU) <b>Fredrik Hildrum</b> (NTNU) <b>Petter Kjeverud Nyland</b> (NTNU) <b>Fredrik Meyer</b> (UiO) <b>Daniel Oldekjer</b> (Uni Research CIPR/UiB) <b>Muhammad Salam Siddiqui</b> (NTNU) <b>Knut Sverdrup</b> (University of Cambridge)
<i>Room San Siro 3, 2nd floor</i>	
19:45 – 22:30	<b>Dinner</b> (music with mathematics content as after dinner entertainment)

**Friday, September 23, 2016**

<i>Room San Siro 3, 2nd floor (Chair: Fred Godtlielsen)</i>	
08:30 – 09:10	<b>Knut-Andreas Lie</b> (SINTEF Oslo/NTNU): So you can prove theorems – but can you code?
09:10 – 09:50	<b>Kjell Kristoffersen</b> (NTNU): How to make 3-dimensional images of the heart in real time – on GE Vingmed and the ultrasound adventure in Norway
09:50 – 10:10	<i>Coffee Break</i>
<b>FUNDING OPPORTUNITIES</b> (Chair: A. Evgrafov)	
10:10 – 10:50	<b>Per Magnus Kommandantvold</b> (RCN, Oslo): Funded programs in the Research Council of Norway and EU Horizon 2020
10:50 – 11:00	<b>E. Celledoni</b> (NTNU) and <b>D. Hömberg</b> (NTNU/TU Berlin): Two project examples funded in Horizon 2020
<i>Room Utsikten, 21st floor</i>	
11:10 – 12:40	<b>PARTNERING BETWEEN INDUSTRY AND ACADEMIA</b> (Chair: Elena Celledoni and Dietmar Hömberg)
12:40 – 12:50	<b>Closing</b>
13:00 – 14:30	<i>Lunch</i>

- **Håkon Christopher Bakka** (NTNU)  
Accounting for physical barriers in species distribution modeling with non-stationary spatial random effects
- **Manuel Borregales** (UiB)  
Numerical convergence of iterative coupling for non-linear Biots model
- **Ulrik Enstad** (UiO)  
Using noncommutative geometry to study the existence of Gabor frames
- **Tatiana Konevskikh** (NMBU)  
Correcting Mie scattering in single cell spectra and modelling fringes in infrared spectra of thin films
- **Øystein Klemetsdal and Runar Lie Berge** (NTNU)  
Unstructured Gridding and Consistent Discretizations for Reservoirs With Faults and Complex Wells
- **Kari Krizak Halle** (NTNU)  
Efficient and powerful familywise error control when testing for genotype-phenotype association in genome-wide association studies.
- **Lu Li** (NTNU)  
Energy Preserving Krylov Projection Methods for Large and Sparse Linear Hamiltonian Equations
- **Fredrik Meyer** (UiO)  
Deformation theory and algebraic geometry: getting rid of the bad points
- **Lars Hov Odsæter** (DNVA)  
Conservation of Mass in Reservoir Simulation
- **Daniel Oldekjer** (Uni Research CIPER/ UiB)  
Uncertainty quantification and error reduction for modeling of CO<sub>2</sub> transport in subsurface saline aquifers
- **Torbjørn Ringholm and Sølve Eidnes** (NTNU)  
Conservative Moving Grid Methods for PDEs
- **Muhammad Salam Siddiqui** (NTNU)  
Numerical analysis of NREL 5MW Wind Turbine: A study towards a better understanding of wake characteristic and torque generation mechanism
- **Alexander Schmeding** (NTNU)  
Shape analysis on Lie groups (and beyond) with applications
- **Knut Sverdrup** (University of Cambridge)  
Numerical solutions for a unified formulation of continuum mechanics









