

# HPC2N Open House with Kebnekaise Celebration



Umeå University, Nov 30, 2017  
Invitation and Program



High Performance Computing Center North cordially invites you to participate in the celebration of Kebnekaise, the latest HPC2N supercomputer. The morning program offers a tutorial and the afternoon program includes invited presentations by scientists using Kebnekaise, a poster session, and the more formal celebration of Kebnekaise. The procurement of Kebnekaise was made possible through a grant from the *Swedish National Metacenter VR/SNIC* and important support of Umeå University.

**Link to registration:** <https://www.hpc2n.umu.se/events/kebnekaise-celebration/registration>

## Tutorials on efficient use of the Kebnekaise system

*Today and in future*

**Room MC413 in MIT-huset**



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|       | CHAIR: Dr <b>Jerry Eriksson</b> , HPC2N Advanced Consultant  |
| 09.00 | <i>Welcome and brief introduction to Kebnekaise</i>  |
| 09.15 | <i>Accelerating scientific discovery with GPUs and Deep Learning</i><br><b>Leif Nordlund</b> , HPC and Deep Learning BDM NVIDIA and <b>Henrik Holst</b> , Solution Architect NVIDIA  |
|       | GPU acceleration is changing the HPC ecosystem. The world's top 15 HPC applications today are GPU accelerated. GPUs have enabled Deep Learning models to process very large amounts of data and train deep neural networks. These deep neural networks have in many cases vastly outperformed previous models for a wide range of applications. It is predicted that tomorrow's HPC applications will combine both simulation and Deep Learning models to further accelerate scientific discovery. |
|       | This tutorial presentation from NVIDIA will briefly cover:   |
|       | <ul style="list-style-type: none"><li>- The latest Tesla Volta 100 hardware and the new Tensor Core technology</li><li>- OpenACC programming model to accelerate existing CPU codes with GPU offloading</li><li>- Overview of NVIDIA GPU Cloud and GPU optimized Deep Learning stacks</li><li>- The future of GPUs</li></ul>   |
| 10.00 | Coffee and Tea   |
| 10.15 | <i>Accelerating scientific discovery with GPUs and Deep Learning, Part 2</i><br><b>Leif Nordlund</b> and <b>Henrik Holst</b>   |
| 11.00 | MSc <b>Magnus Jonsson</b> , HPC2N System Developer<br><i>How to request resources on Kebnekaise efficiently</i>  |
| 11.45 | Lunch break – participants on their own  |



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## Symposium and Kebnekaise Celebration – MIT Place

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|-------|--|
| 13.15 | <p>CHAIR: <b>Bo Kågström</b>, HPC2N Director</p> <p><i>Welcome and Opening</i></p> <p>Sample User Research Projects at HPC2N</p> <p><i>Capturing Evolution with Computers</i><br/>Prof. <b>Lynn Kamerlin</b>, Dept. of Cell and Molecular Biology, Uppsala University</p> <p><i>Quantum Modelling of Electron Structure for Materials Properties</i><br/>Prof. <b>Andreas Larsson</b>, Applied Physics, Dept. of Engineering Sciences and Mathematics, Luleå University of Technology</p> <p><i>Understanding the Mechanism of Nerve Agent Antidotes</i><br/>Prof. <b>Anna Linusson</b>, Dept. of Chemistry, Umeå University</p> <p><i>How the Solar Wind interacts with the Moon, Mars, Comets, Ceres, Ganymede, Callisto and Exoplanets</i><br/>Assoc. Prof. <b>Mats Holmström</b>, Swedish Institute of Space Physics, Kiruna</p> |
| 14.45 | <p><i>Posters – Coffe and Tea will be served</i></p>   |
| 15.15 | <p>CHAIR: Prof. <b>Mikael Elofsson</b>, Dean of the Faculty of Science and Technology</p> <p>HPC2N Activities and R&amp;D Collaborations</p> <p><i>HPC2N at a glance and</i><br/><i>NLAFET – Parallel Numerical Algebra for Future Extreme Scale Systems</i><br/>Prof. <b>Bo Kågström</b>, Director of HPC2N and Dept. of Computing Science, Umeå University</p> <p><i>Autonomous Management and Software Defined Infrastructures for Future Datacenters</i><br/>Prof. <b>Erik Elmroth</b>, Dept. of Computing Science, Umeå University</p> <p><i>UMIT Research Lab – Computational Science and Engineering focusing on Industrial Applications</i><br/>Prof. <b>Mats G. Larson</b>, Dept. of Mathematics and Mathematical Statistics, Umeå University</p>   |
| 16.15 | <p>CHAIR: Prof. <b>Mikael Elofsson</b>, Dean of the Faculty of Science and Technology</p> <p><i>Kebnekaise – A Heterogeneous Massively Parallel HPC System</i><br/>MSc <b>Björn Torkelsson</b>, HPC2N Technical Coordinator</p> <p><i>Vendor Views and Kebnekaise Highlights</i><br/>Representatives of <b>Lenovo, Intel, Nvidia</b> and <b>Mellanox</b></p> <p><i>Kebnekaise Inauguration and Celebration</i><br/>Prof. <b>Hans Adolfsson</b>, Vice-Chancellor Umeå University<br/>Prof. <b>Hans Karlsson</b>, SNIC Director</p> <p>Visit Kebnekaise in the Computer Room guided by HPC2N Staff – Sparkling beverages will be served</p>  |
| 17.30 | <p>Dinner Buffet at Universum</p>  |