

# PROGRAM

## CSD Winter School

Myrkdalen

March 13.-17., 2023

### Overview:

|             | Monday                           | Tuesday                          | Wednesday                        | Thursday                         | Friday                           |
|-------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 07:30-08:15 | <i>Arrival</i>                   | <i>Breakfast</i>                 | <i>Breakfast</i>                 | <i>Breakfast</i>                 | <i>Breakfast</i>                 |
| 08:30-10:00 |                                  | Mod. 1                           | Mod. 1                           | Mod. 1                           | Mod. 1                           |
| 10:00-10:30 |                                  | <i>Break</i>                     | <i>Break</i>                     | <i>Break</i>                     | <i>Break</i><br><i>Check out</i> |
| 10:30-12:00 |                                  | <i>Check in</i>                  | Mod.1                            | Mod.1                            | Mod.1                            |
| 12:00-13:00 | <i>Lunch</i>                     | <i>Lunch/</i>                    | <i>Lunch/</i>                    | <i>Lunch/</i>                    | <i>Lunch/</i>                    |
| 13:00-15:00 | Introductory<br>Sessions         | <i>Skiing/</i><br><i>Other</i>   | <i>Skiing/</i><br><i>Other</i>   | <i>Skiing/</i><br><i>Other</i>   | <i>Departure</i>                 |
| 15:30-16:30 | Mod.1                            | Mod.1                            | Mod.1                            | Mod.1                            |                                  |
| 16:30-17:30 | Mod.2,3                          | Mod.2,3/PP                       | Mod.3/PP                         | Mod.2                            |                                  |
| 17:30-18:30 | Mod.2,3?                         | Mod.2,3/PP                       | Mod.3/PP                         | Mod.2                            |                                  |
| 19:00-21:00 | <i>Dinner</i>                    | <i>Dinner</i>                    | <i>Dinner</i>                    | <i>Dinner</i>                    |                                  |
| 21:00-      | Night talk/<br>Social activities | Night talk/<br>Social activities | Night talk/<br>Social activities | Night talk/<br>Social activities |                                  |

Module 1 = Scientific presentations

Module 2 = Political and ethical perspectives

Module 3 = Soft skills

PP = Parallel session: Crash course in PorePy

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|---------------|--|---|
| <b>DAY 1:</b> | <b>Monday</b>  |   |
| -12:00        | <i>Arrival and check in</i>                                  |   |
| 12:00-13:00   | <i>Lunch</i>   |   |
| 13:30-14:00   | Welcome and introduction to CSD Winter school                | Professor Inga Berre<br>Director CSD            |
| 14:00-15:00   | Modeling, data, and simulation:<br>Introduction and overview | Professor Hamdi Tchelepi<br>Stanford University |
| 15:00-15:30   | <i>Break</i>   |   |
| 15:30-16:30   | TBD  | Professor Maarten de Hoop<br>Rice University    |
| 16:30-17:30   | Introduction to Teamwork                                     | Mathilde Sørensen, UiB                          |
| 17:30-18:30   | TBD Mod.2/Mod.3  | Mathilde Sørensen, UiB                          |
| 19:00-21:00   | <i>Dinner</i>  |   |
| 21:00-        | Night talk/Social activities                                 |   |

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| <b>DAY 2:</b> | <b>Tuesday</b>   |   |
| 07:30-08:15   | <i>Breakfast</i>   |   |
| 08:30-10:00   | Experiments, observations, modelling,<br>and simulations   | Professor Hamdi Tchelepi<br>Stanford University |
| 10:00-10:30   | <i>Break</i>   |   |
| 10:30-11:15   | Data driven science vs.<br>Model driven science  | Professor Hamdi Tchelepi<br>Stanford University |
| 11:15-12:00   | Coupled thermal, mechanical deformations,<br>and flow in fractured medium: Applications<br>to Geothermal energy. | Ivar Stefansson<br>UiB                          |
| 12:00-15:30   | <i>Lunch/Skiing/Other</i>  |   |
| 15:30-16:30   | Monitoring of Induced Seismicity<br>– some case studies  | Volker Oye<br>NORSAR                            |
| 16:30-17:30   | Work in Teams<br>Parallel Session: PorePY*   |   |
| 17:30-18:30   | Work in Teams<br>Parallel Session: PorePY*   |   |
| 19:00-21:00   | <i>Dinner</i>  |   |

\*Short Course in PorePY:

An Introduction to simulation of mixed-dimensional problems using PorePy

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| <b>DAY 3:</b> | <b>Wednesday</b>  |  |
| 07:30-08:15   | <i>Breakfast</i>  |  |
| 08:30-10:00   | FluidFlower:<br>Modelling and experiments   | Jan Nordbotten, UiB<br>Martin Fernø, UiB           |
| 10:00-10:30   | <i>Break</i>  |  |
| 10:30-11:15   | TBD   | Lars Ottemöller, UiB                               |
| 11:15-12:00   | Experiments involving flow in fractured medium: Interface between modelling and experiments | Bergit Brattekkås, UiB                             |
| 12:00-15:30   | <i>Lunch/Skiing/Other</i>   |  |
| 15:30-16:30   | Energy storage:<br>Short introduction and interview   | Professor Rainer Helmig<br>University of Stuttgart |
| 16:30-17:30   | Teams work<br><br>Parallel Session: PorePY*   | Jan Nordbotten, UiB<br>Kundan Kumar, UiB           |
| 17:30-18:30   | Teams work<br><br>Parallel Session: PorePY*   | Jan Nordbotten, UiB<br>Kundan Kumar, UiB           |
| 19:00-21:00   | <i>Dinner</i>   |  |
| 21:00-        | Night talk/Social activities  |  |

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| <b>DAY 4:</b> | <b>Thursday</b>   |   |
| 07:30-08:15   | <i>Breakfast</i>  |   |
| 08:30-10:00   | Induced Seismicity: modelling and computational challenges                | Professor Hamdi Tchelepi<br>Stanford University |
| 10:00-10:30   | <i>Break</i>  |   |
| 10:30-11:15   | CCS: Status and challenges  | Sarah Gasda,<br>NORCE                           |
| 11:15-12:00   | Iterative solvers: how to solve coupled PDEs with a link to applications. | Jakub Both, UiB                                 |
| 12:00-15:30   | <i>Lunch/Skiing/Other</i>   |   |
| 15.30-16:30   | Building a career in science<br>Interview                                 | Professor Kenneth Ruud<br>UiT/NDI               |
| 16:30-17:30   | Teams work  | Mathilde Sørensen, UiB<br>Helge Dahle, UiB      |
| 17:30-18:30   | Teams work  | Mathilde Sørensen, UiB<br>Helge Dahle, UiB      |
| 19:00-21:00   | <i>Dinner</i>   |   |
| 21:00-        | Night talk/Social activities  |   |

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| <b>DAY 5:</b> | <b>Friday</b>                              |   |
| 07:30-08:15   | <i>Breakfast</i>                           |   |
| 08:30-09:30   | Modeling, data, and simulation:<br>Summary | Professor Hamdi Tchelepi<br>Stanford University |
| 09:30-10:00   | <i>Break and check out</i>                 |   |
| 10:00-11:00   | Presentation of Teamwork:<br>Session 1     | Teams   |
| 11:00-12:00   | Presentation of Teamwork:<br>Session 2     | Teams   |
| 12:00-        | <i>Lunch/Departure</i>                     |   |