UNIVERSITY OF BERGEN
Center for Modeling of Coupled Subsurface Dynamics

PROGRAM

CSD Winter School

Myrkdalen
March 13.-17., 2023

Overview:

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

Module 1 = Scientific presentations
Module 2 = Political and ethical perspectives
Module 3 = Soft skills
PP = Parallel session: Crash course in PorePy

DAY 1:	**Monday**	
-12:00	*Arrival and check in*	
12:00-13:00	*Lunch*	
13:30-14:00	Welcome and introduction to CSD Winter school	Professor Inga Berre Director CSD
14:00-15:00	Overview of Modeling and Simulation of Subsurface CO2 Sequestration	Professor Hamdi Tchelepi Stanford University Session chair: Helge Dahle
15:00-15:30	*Break*	
15:30-16:15	Physics based machine learning approaches for geosciences	Professor Maarten de Hoop Rice University Session chair: Yury Zabegaev
	Break	
16:30-17:15	From multi-physics, multi-scale modelling and model reduction, via risk assessment and robust design towards the science/policy interface	Rainer Helmig University of Stuttgart Session chair: Mathilde Sørensen
	Break	
17:30-18:30	Introduction to Teamwork	Mathilde Sørensen, UiB Helge Dahle, UiB
19:00-21:00	*Dinner*	
21:00-	Night talk/Social activities	Ingrid Kristine Jakobsen

DAY 2:	Tuesday	
07:30-08:15	*Breakfast*	
08:30-10:00	Darcy-scale Formulation of thermal-compositional-mechanics in heterogeneous formations	Professor Hamdi Tchelepi Stanford University
10:00-10:30	*Break*	
10:30-11:15	Two-phase poromechanics in reservoir simulation Governing equations, discretization scheme, and solution strategy	Professor Hamdi Tchelepi Stanford University
11:15-12:00	Coupled thermal, mechanical deformations, and flow in fractured medium: Applications to Geothermal energy.	Ivar Stefansson UiB Session chair: Marius Nevland
12:00-15:30	*Lunch/Skiing/Other*	
15:30-16:15	Monitoring of Induced Seismicity – some case studies	Volker Oye NORSAR Session chair: Maren Karlsen
	Break	
16:30-17:15	Parallel Session: Academic writing Parallel Session: PorePY*	Inga Berre Eirk Keilegavlen
	Break	
17:30-18:30	Parallel Session: Academic writing Parallel Session: PorePY*	Inga Berre Eirk Keilegavlen
19:00-21:00	*Dinner*	

*Short Course in PorePY:
An Introduction to simulation of mixed-dimensional problems using PorePy

DAY 3:	Wednesday	
07:30-08:15	*Breakfast*	
08:30-10:00	FluidFlower: Modelling and experiments	Jan Nordbotten, UiB Martin Fernø, UiB Session chair: Olav Folkvord
10:00-10:30	*Break*	
10:30-11:15	Intraplate earthquake swarms: nature and causes	Lars Ottemöller, UiB Session chair: Ujjwal Shekhar
11:15-12:00	Experiments involving flow in fractured medium: Interface between modelling and experiments	Martin Fernø, UiB Jakub Both, UiB Session chair: Peter von Schultzendorff
12:00-15:30	*Lunch/Skiing/Other*	
15:30-16:15	Modeling and simulation approaches for offshore CO2 storage.	Sarah Gasda, NORCE Session chair: Joanna Holmgren
	Break	
16:30-17:15	Parallel Session: Science communication Parallel Session: PorePY*	Jan Nordbotten, UiB Kundan Kumar, UiB Eirik Keilegavlen
	Break	
17:30-18:30	Parallel Session: Science communication Parallel Session: PorePY*	Jan Nordbotten, UiB Kundan Kumar, UiB Eirik Keilegavlen
19:00-21:00	*Dinner*	
21:00-	Night talk/Social activities	Jan M. Nordbotten

DAY 4:	Thursday	
07:30-08:15	*Breakfast*	
08:30-10:00	Contact Mechanics of Faults and Fractures with a Taste of Induced Seismicity	Professor Hamdi Tchelepi Stanford University
10:00-10:30	*Break*	
10:30-11:15	Energy storage: Towards zero-carbon energy systems	Professor Rainer Helmig University of Stuttgart Session Chair Kundan Kumar
11:15-12:00	Iterative solvers: how to solve coupled PDEs with a link to applications.	Jakub Both, UiB Session chair: Veljko Lipovac
12:00-15:30	*Lunch/Skiing/Other*	
15.30-16:30	Building a career in science Panel presentations and Questions	Panel: Kenneth Ruud Sarah Gasda Mathilde Sørensen Hamdi Tchelepi Moderator: Kundan Kumar
	Break	
16:45-17:30	Teams work	Mathilde Sørensen, UiB Helge Dahle, UiB
	Break	
17:45-18:30	Teams work	Mathilde Sørensen, UiB Helge Dahle, UiB
19:00-21:00	*Dinner*	

DAY 5:	Friday	
07:30-08:15	*Breakfast*	
08:30-09:30	Overview of the GEOS simulation framework	Professor Hamdi Tchelepi Stanford University
09:30-10:00	*Break and check out*	
10:00-11:00	Presentation of Teamwork: Session 1	Teams Moderators: Mathilde Sørensen, Helge Dahle
11:00-12:00	Presentation of Teamwork: Session 2	Teams Moderators: Mathilde Sørensen, Helge Dahle
12:00-	*Lunch/Departure*	