

**Multi-field problems across different scales:  
materials for the development of green technologies**

**Monday June 24th, 2024 - Day 1**

09:00 - 10:30	Michele Marino
	<b>Introduction to the Course - Foundations of Continuum Thermodynamics</b>
	Coffee break
11:00 - 12:30	Vikram Deshpande
	<b>Hydrogen embrittlement of ferritic steels</b>
	Lunch break
14:00 - 15:30	Jörg Schroder
	<b>Foundations of Continuum Micromagnetism - Theory of Invariants</b>
	Coffee break
16:00 - 17:30	Hongbin Zhang
	<b>Atomic origin of magnetic moments and exchange coupling mechanisms</b>

**Tuesday June 25th, 2024 - Day 2**

09:00 - 10:30	Laurent Stainier
	<b>Modelling of coupled diffusion-mechanics</b>
	Coffee break
11:00 - 12:30	Heiko Wende
	<b>Short Introduction to Magnetism</b>
	Lunch break
14:00 - 15:30	Hongbin Zhang
	<b>Physics of magneto-crystalline anisotropy</b>
	Coffee break
16:00 - 17:30	Vikram Deshpande
	<b>Variational principles for modelling of chemo-mechanical couplings in all solid-state Li-ion batteries</b>

**Wednesday June 26th, 2024 - Day 3**

09:00 - 10:30	Vikram Deshpande
	<b>Current state of understanding of failure mechanisms in all solid-state Li-ion batteries</b>
	Coffee break
11:00 - 12:30	Heiko Wende
	<b>Magnetic Materials for Green Energy</b>
	Lunch break
14:00 - 15:30	Michele Marino
	<b>Mechanistic and data-driven computational homogenization</b>
	Coffee break
16:00 - 17:30	Laurent Stainier
	<b>Two-scale approaches to transient diffusion in heterogeneous materials 1</b>
17:45 - 19:30	<b>Guided Tour of the city of Udine</b>

**Thursday June 27th, 2024 - Day 4**

09:00 - 10:30	Laurent Stainier
	<b>Two-scale approaches to transient diffusion in heterogeneous materials 2</b>
	Coffee break
11:00 - 12:30	Jörg Schroder
	<b>Magnetic-electrical-mechanical coupled problems: Algorithmic scale-bridging</b>
	Lunch break
14:00 - 15:30	Hongbin Zhang
	<b>Density functional theory and machine learning</b>
	Coffee break
16:00 - 17:30	Heiko Wende
	<b>Element Specific Insight into Magnetocaloric Materials</b>

**Friday June 28th, 2024 - Day 5**

09:00 - 10:30	Jörg Schroder
	<b>Efficient FE approximation of magnetic stray fields in large exterior domains</b>
	Coffee break
11:00 - 12:15	Michele Marino
	<b>Hydrogels for energy applications</b>
12:15 - 12:30	Jörg Schroder, Michele Marino
	<b>Final Remarks</b>