

Workshop on
“Current challenges in complex materials: modelling and analysis”

January 9 - 13, 2023

organized by

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Time measurement: CET

• **Monday, January 9**

08:30 - 08:50	<i>Arrival and Registration</i>
08:50 - 09:00	<i>Welcome by HIM Director Christoph Thiele</i>
09:00 - 09:50	Felix Otto <i>Bias in the Representative Volume Element method: periodize the ensemble instead of its realizations</i>
09:50 - 10:40	Anne Bernand-Mantel <i>Skyrmion theory in magnetic thin films: the role of non-local magnetic dipolar interaction</i>
10:40 - 11:10	<i>Coffee break</i>
11:10 - 12:00	Cyrill Muratov <i>Magnetic skyrmions under confinement</i>
12:00 - 14:30	<i>Lunch break</i>
14:30 - 15:20	Giacomo Canevari <i>A free-discontinuity problem for smectic liquid crystals</i>
15:20 - 16:10	Zhiyuan Geng <i>Liquid crystal droplets and a nonlocal free boundary problem</i>
16:10 - 16:30	<i>Coffee break</i>
16:30 - 17:20	Massimiliano Morini <i>Capillary surfaces and a model of nanowire growth</i>

• **Tuesday, January 10**

09:00 - 09:50	Radu Ignat <i>Separation and interaction energy between domain walls in a nonlocal model coming from micromagnetics</i>
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09:50 - 10:40	Giovanni Di Fratta <i>Curved thin-film limits of chiral Dirichlet energies</i>
10:40 - 11:10	<i>Poster Session, Coffee break and Group Photo</i>
11:10 - 12:00	Michele Ruggeri <i>Numerical methods for antiferromagnetic and ferrimagnetic materials</i>
12:00 - 14:30	<i>Lunch break</i>
14:30 - 15:20	Xian Chen <i>Two tier compatibility conditions for phase transforming polycrystals</i>
15:20 - 16:10	Ivan Smalyukh <i>Knotted Solitonic Matter</i>
16:10 - 16:30	<i>Coffee break</i>
from 18:00 on	<i>Reception</i>

- **Wednesday, January 11**

09:00 - 09:50	Bianca Stroffolini <i>A 2D model for ferronematics with weak coupling</i>
09:50 - 10:40	Răzvan Dumitru Ceucă <i>Cubic microlattices embedded in nematic liquid crystals: a Landau-de Gennes study</i>
10:40 - 11:10	<i>Poster Session and Coffee break</i>
11:10 - 12:00	Caterina Zeppieri <i>Gamma-convergence and homogenisation of phase-field functionals</i>

- **Thursday, January 12**

09:00 - 09:50	Adriana Garroni <i>Variational approach for grain boundaries</i>
09:50 - 10:40	Annika Bach <i>Emergence of topological singularities in the antiferromagnetic XY-model on the triangular lattice</i>
10:40 - 11:10	<i>Coffee break</i>
11:10 - 12:00	Tobias Ried <i>The Mathematics of the Magnetisation Ripple-Variational Methods for a Singular SPDE</i>
12:00 - 14:30	<i>Lunch break</i>
14:30 - 15:20	Dmitry Golovaty <i>Tetrahedral frame fields via constrained third order symmetric tensors</i>
15:20 - 16:10	Davit Harutyunyan <i>On the extreme rays of the cone of 3 times 3 quasiconvex quadratic forms</i>
16:10 - 16:30	<i>Coffee break</i>

• **Friday, January 13**

09:00 - 09:50	Amit Acharya <i>Dynamics of line defects</i>
09:50 - 10:40	Miha Ravnik <i>Ionicly Charged Topological Defects in Nematic Fluids</i>
10:40 - 11:10	<i>Coffee break</i>
11:10 - 12:00	Xavier Lamy <i>Generation of vortices in the Ginzburg Landau heat flow</i>
12:00 - 14:30	<i>Lunch break</i>
14:30 - 15:20	Likhit Ganedi <i>Phase Separation in Heterogeneous Fluids</i>
15:20 - 16:10	Theresa Simon <i>The elastica functional as the critical Gamma-limit of the screened Gamow model</i>
16:10 - 16:30	<i>Coffee break</i>