



# Workshop on "Geometric and Applied Analysis"

## July 12 - 16, 2021

### organized by Tim Laux (Bonn)

All talks take place online! All times are given in the local time zone of Bonn: (UTC+2)

#### • Monday, July 12

12:00 - 12:15	Welcoming remarks
12:15 - 13:00	<b>Alessandra Pluda</b> Resolution of singularities of the network flow
13:10 - 14:00	Lunch/coffee break in gather town
14:00 - 14:45	<b>Julian Fischer</b> Uniqueness and stability properties of multiphase mean curvature flow: An approach based on the variational (gradient flow) nature of the prob- lem
14:55 - 15:40	Marcello Ponsiglione Stability results for nonlocal geometric evolutions
15:50 - 16:15	Coffee break in Zoom breakout rooms
16:15 - 17:00	<b>Eleonora Cinti</b> Some recent results in the study of fractional mean curvature flow
17:10 - 17:55	<b>Aaron Nung Kwan Yip</b> Stability of Self-Similar Solutions of Surface Diffusion
18:05 - 19:00	Open discussions in gather town

#### • Tuesday, July 13

11:00- 11:45	Matteo Novaga Variational models for charged liquid drops
11:55 - 12:40	<b>Sara Daneri</b> Symmetry breaking and pattern formation for local/nonlocal interaction functionals
12:50 - 14:00	Lunch/coffee break in gather town

14:00 - 14:45	Patrick Dondl Connected Coulomb Columns
14:55 - 15:40	Lucia De Luca Topological singularities in periodic media
15:50 - 16:15	Coffee break in Zoom breakout rooms
16:15 - 17:00	<b>Christof Melcher</b> Emergent spin-orbit coupling in a spherical magnet
17:10 - 17:45	<b>Theresa M. Simon</b> Skyrmions and stability of degree 1 harmonic maps from the plane to the two-dimensional sphere
18:05 - 19:00	Open discussions in gather town

# • Wednesday, July 14

11:00 - 11:25	<b>Contributed talk 1: Tobias Ried</b> A variational approach to the regularity of optimal transportation
11:30 - 11:55	<b>Contributed talk 2: Konstantinos Zemas</b> <i>Rigidity estimates for isometric and conformal maps on the sphere</i>
12:00 - 12:25	Contributed talk 3: Alice Marveggio On a non-isothermal Cahn-Hilliard model based on a microforce balance
12:30 - 12:55	<b>Contributed talk 4: Giorgio Saracco</b> Convexity properties of the isoperimetric profile
13:00 - 14:00	Lunch/coffee break in gather town
14:00 - 14:45	<b>Marcello Carioni</b> Superposition principles, extremal points and dynamic variational prob- lems
14:55 - 15:40	Alpár Mészáros Weak solutions to the Muskat problem with surface tension via optimal transport
15:50 - 16:15	Coffee break in Zoom breakout rooms
16:15 - 17:00	<b>Connor Mooney</b> Singularity structures in solutions to the Monge–Ampère equation
17:10 - 17:55	<b>Inwon Kim</b> Optimal transport with stopping times and Stefan problem
18:05 - 19:00	Open discussions in gather town

## • Thursday, July 15

12:00 - 13:00	Open discussions in gather town
13:00 - 14:00	Lunch/coffee break in gather town
14:00 - 14:45	Matthias Röger A Willmore approximation arising from an Allen–Cahn/Cahn–Hilliard system
14:55 - 15:40	Harald Garcke Phase field approaches to shape and topology optimization
15:50 - 16:15	Coffee/lunch break in Zoom breakout rooms
16:15 - 17:00	<b>Simon Masnou</b> Approximation of mean curvature flow: from phase field models to neural networks
17:10 - 17:55	Selim Esedoglu Variational extrapolation of numerical schemes for gradient flows
18:05 - 19:00	Open discussions in gather town

## • Friday, July 16

12:00 - 12:45	Giovanni Alberti Frobenius theorem for non-smooth sets and currents
12:55 - 14:00	Lunch/coffee break in gather town
14:00 - 14:45	Antonin Chambolle Korn and Poincaré-Korn inequalities for displacements with small jump set
14:55 - 15:40	Caterina Ida Zeppieri Stochastic homogenisation of free-discontinuity problems
15:50 - 16:15	Coffee break in Zoom breakout rooms
16:15 - 17:00	Xavier Lamy Saturn ring defect around a particle immersed in nematic liquid crystal
17:10 - 17:55	Raghav Venkatraman Highly Anisotropic Nematic Liquid Crystals
18:05 - 19:00	Open discussions in gather town