Mathematisches
Forschungsinstitut
Oberwolfach

Member of Leibniz Association

Oberwolfach Seminar

Interfaces: Modeling, Analysis, Numerics

Organizers: Eberhard Bänsch, Erlangen
Klaus Deckelnick, Magdeburg
Harald Garcke, Regensburg
Paola Pozzi, Essen
Date (ID): 20 – 26 November 2022 (2247a)
Deadline: 4 September 2022

The evolution of surfaces plays an important role in geometry, applied mathematics and in the natural sciences and typically leads to fascinating shapes and patterns. In this seminar geometric evolution equations such as mean curvature flow and surface diffusion are studied as examples of gradient flows of the area functional. Also in many free boundary problems the motion of an interface is given by an evolution law involving curvature quantities. In particular, we will introduce the Mullins-Sekerka flow and the Stefan problem with its anisotropic variants, Willmore flow as well as two-phase flows and discuss analytical and numerical approaches to deal with them.

The goal is to provide an introduction into this exciting research area. We will discuss current main research topics, and we will in particular stress how modeling, analysis and numerics work together to gain a full understanding. The seminar will also include problem sessions preparing the participants to conduct their own research in this area.

Please see the detailed program at **www.mfo.de/occasion/2247a.**

The seminar takes place at the Mathematisches Forschungsinstitut Oberwolfach. The Institute covers board and lodging. By the support of the Carl Friedrich von Siemens Foundation travel expenses can be reimbursed up to 150 EUR in average per person (against copies of travel receipts). The number of participants is restricted to 25.

Applications including title, ID and date of the intended seminar, together with **one pdf-file attached** containing

- full name and address, incl. e-mail address
- short CV and publication list
- present position, university
- name of supervisor of Ph.D. thesis
- a short summary of previous work and interest

should be **sent by e-mail** via **seminars@mfo.de** until 4 September 2022 to:

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