Mathematisches
Forschungsinstitut
Oberwolfach

Oberwolfach Seminar
Recent Topics on the Navier-Stokes Equations

Organizers: Tristan Buckmaster, Maryland/
New York
Hideo Kozono, Sendai/Tokyo
Senjo Shimizu, Kyoto
Date (ID): 22 – 27 October 2023 (2343a)
Deadline: 29 July 2023

The seminar is addressed to the recent development of research on the Navier-Stokes equations. In the non-stationary case, Leray constructed a global weak solution in the 3D space with finite energy and dissipation for arbitrary initial data. In a surprising result, Buckmaster and Vicol proved the non-uniqueness of weak solutions in the class of finite energy. The proof is based on convex integration. In the stationary case, it is a fundamental question whether the solution does exist for the prescribed inhomogeneous boundary data in multi-connected domains. Such a problem is closely related to the L^p-Helmholtz-Weyl decomposition of vector fields in 3D interior and exterior domains. The free boundary problem of two phase flow is also fundamental in the fluid mechanics, and the approach in terms of maximal L^p-regularity theorem has been fully developed.

The week-long seminar will be devoted to such problems. The target audience is PhD students or post-doctoral researchers wishing to be quickly immersed in a modern, active research area. Priority will be given to young, motivated researchers.

Please see the website of the seminar for detailed information:

www.mfo.de/occasion/2343a

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 29 July 2023 to:

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