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Mathematisches
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Oberwolfach

Oberwolfach Seminar
Topological Cyclic Homology and Arithmetic

Organizers: Dustin Clausen, Bonn
Lars Hesselholt, Copenhagen
Akhil Mathew, Chicago
Date (ID): 20 – 26 October 2019 (1943b)
Deadline: 11 August 2019

The purpose of the seminar is to introduce the higher algebra refinements of determinant and trace, namely, algebraic K-theory and topological cyclic homology, along with their budding applications in arithmetic geometry and number theory. In particular, we will use these ingredients to build Clausen's Artin map from K-theory of locally compact topological R-modules to the dual of his Selmer K-theory of R, and explain that for R a finite, local, or global field, this implies the classical Artin reciprocity.

Introductory reading:

- J. Lurie, Math 281 Lectures 14-20, http://math.harvard.edu/~lurie/281.html.
- A. Blumberg, D. Gepner, G. Tabuada, A universal characterization of higher algebraic K-theory, Geom. Topol. 17 (2013), 733-838.
- T. Nikolaus, P. Scholze, On topological cyclic homology, Acta Math. 221 (2018), 203-409.
- B. Bhatt, M. Morrow, P. Scholze, Topological Hochschild homology and integral p-adic Hodge theory, arXiv:1802.03261.
- D. Clausen, A. Mathew, M. Morrow, K-theory and topological cyclic homology of henselian pairs, arXiv:1803.10897.
- D. Clausen, A K-theoretic approach to Artin maps, arXiv:1703.07842.

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

- 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
- title, ID and date of the intended seminar

should be sent preferably by e-mail (with attachments in pdf format) via **seminars@mfo.de** until 11 August 2019 to:

Prof. Dr. Dietmar Kröner
Mathematisches Forschungsinstitut Oberwolfach
Schwarzwaldstr. 9 – 11
77709 Oberwolfach
Germany