



Mathematisches
Forschungsinstitut
Oberwolfach



Oberwolfach Seminar

Combinatorial and Geometric Knot Theory

Organizers: Colin C. Adams, Williamstown
Louis H. Kauffman, Chicago
Sofia Lambropoulou, Athens
Date (ID): 21 – 27 November 2021 (2147b)
Deadline: 12 September 2021

The goal of this seminar is to enable an exchange of methods and ideas as well as exploration of fundamental research problems in the fields of knot theory and low-dimensional topology, from theory to applications. Knot theory is the study of the topology of embeddings of the circle into 3-dimensional space. Combinatorial knot theory uses piecewise-linear techniques and diagrammatic translations to study geometric and topological problems and their interrelationships with algebra.

The focal topics of this seminar include a wide range of invariants of knots and links and related topics such as three- and four- dimensional manifolds, virtual knot theory, braids and knot algebras, quantum invariants, skein modules, link homology, quandles and their homology, hyperbolic knots and geometric structures of three-dimensional manifolds. Knot theory originated in the daring 19th century conjecture of Lord Kelvin that atoms were knotted vortices in the luminiferous aether. The aether theory proved incorrect, but the knot theory continued, and now has applications to vortices and other aspects of natural science such as DNA. We will touch upon the scientific applications and give key examples.

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 12 September 2021 to:

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