Mathematisches
Forschungsinstitut
Oberwolfach

Oberwolfach Seminar

G-Complete Reducibility, Geometric Invariant Theory and Spherical Buildings

Organizers: Michael Bate, York
Benjamin Martin, Aberdeen
Gerhard Röhrle, Bochum
Date (ID): 5 – 11 June 2022 (2223b)
Deadline: 3 April 2022

The seminar is in a core area of algebraic group theory and at the interdisciplinary cross roads of algebra and representation theory on the one hand, geometry and geometric invariant theory on the other. The notion of G-complete reducibility for subgroups of a reductive algebraic group G was introduced by J-P. Serre in the 1990s as a natural generalization of the notion of complete reducibility in representation theory (which corresponds to the case where G is the general linear group). Since its introduction, this notion has been widely studied, both as an important concept in its own right, with applications to the structure of linear algebraic groups, and also as a useful tool with applications in representation theory, geometric invariant theory, the theory of buildings, and number theory.

The aim of this Oberwolfach Seminar is to introduce participants to G-complete reducibility and explain some of its many applications across pure mathematics — participants will learn some rich and deep modern algebra, and leave equipped with an understanding of how this mathematics continues to be applied to solve a diverse range of problems, particularly in the theory of algebraic groups.

Please see the detailed program and a recommended reading list at **www.mfo.de/occasion/2223b.**

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 3 April 2022 to:

Prof. Dr. Matthias Hieber
Mathematisches Forschungsinstitut Oberwolfach
Schwarzwaldstr. 9 – 11
77709 Oberwolfach
Germany