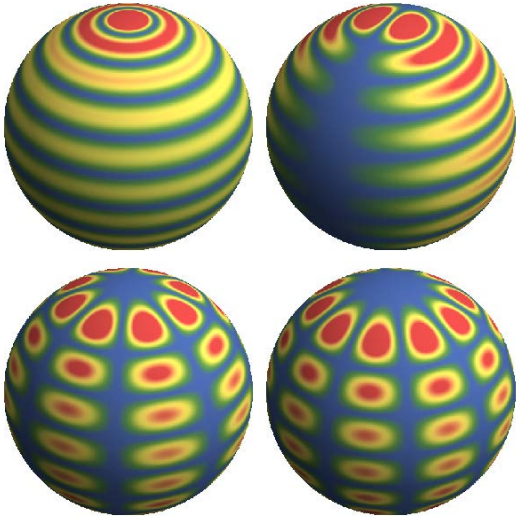
Berlin Mathematics Research Center MATH+

Berlin Mathematical School BMS

MATH+ Friday Colloquium

Friday 17 December 2021 at 14:15

Online (Zoom)



© Vitaliy Kaurov

Valentin Blomer

(U Bonn)

Analysis on arithmetic manifolds

An arithmetic manifold is a Riemannian manifold with additional arithmetic structure: it is acted on by a commutative algebra of "arithmetically defined" operators. The most classical example is the complex upper half plane modulo the action of a congruence subgroup which admits the action of Hecke operators. The investigation of the analytic properties of joint Hecke-Laplace eigenfunctions on such manifolds offers a fascinating interplay of analysis on Lie groups, number theory and automorphic forms. An important focal point in recent years has been the sup-norm problem, i.e. the search for pointwise bounds for eigenfunction when the eigenvalue tends to infinity.

The talk gives an introduction to the analysis on arithmetic manifolds and presents classical techniques, a variety of applications and new directions in the sup-norm problem.

Valentin Blomer is professor of mathematics at the University of Bonn. His area of research is analytic number theory and automorphic forms. His awards include an ERC Grant and a Volkswagen Lichtenberg Professorship. He is an elected member of Academia Europaea.