Berlin Mathematics Research Center MATH+

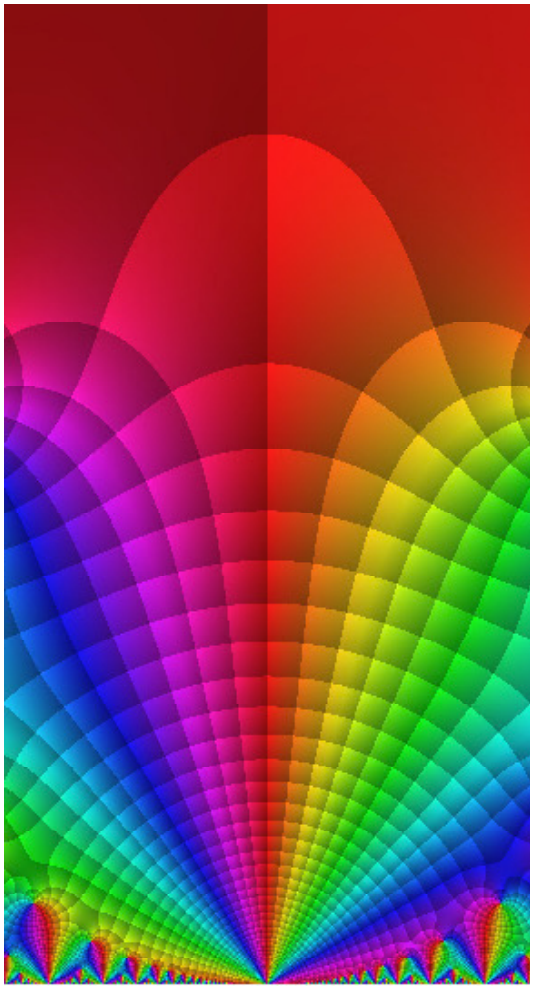
Berlin Mathematical School BMS

MATH+ Friday Colloquium

Friday 28 April 2023

HU Berlin, Erwin-Schrödinger Zentrum, Room 0'115

Tea&Cookies starting at 13:00!



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This MATH+ Friday Colloquium celebrates the 200th birthday of **Gotthold Eisenstein**, a mathematician whose activity has been inextricably linked to Berlin.

14:00 Jürg Kramer *(HU Berlin)*

Gotthold Eisenstein – Life and Work (historical talk)

14:30 Laurent Clozel *(U Paris-Sud)*

Topological realization of Eisenstein cohomology (after Scholze)

The theory of Eisenstein series is a central part of the modern theory of automorphic forms. On the other hand, automorphic forms give a way of computing the cohomology of the arithmetic quotients of symmetric spaces. This is crucial, for example, in understanding the cohomology of Shimura varieties, which in turn is the space in which the relation between Galois representations and automorphic forms takes place. Using Eisenstein series to construct parts of these cohomology spaces is a basic problem, introduced and partly solved, mostly by Günter Harder and Joachim Schwermer, over the last 50 years. In a special case ('maximal parabolic subgroups'), Peter Scholze has given a purely topological construction of this 'Eisenstein cohomology'. Clozel will sketch this construction, which he has generalized.

Born in 1953, Clozel has studied at École Normale Supérieure in Paris. His thesis in representation theory very soon led to him being involved in the 'Langlands program', i.e. the modern theory of automorphic forms. For his work on base change for automorphic forms, he received the Prix Élie Cartan of the French Academy. He was also an invited speaker at the 1986 International Congress of Mathematicians in Berkeley. He has participated in its applications to number-theoretic problems (higher Ramanujan conjecture, Sato-Tate conjecture) as well as to other fields (equidistribution, spectral theory of locally symmetric spaces). He is currently a full professor at the Université Paris-Sud.

15:45 Stephen Kudla *(U Toronto)*

Eisenstein series and arithmetic

Eisenstein, whose 200th birthday we now celebrate, introduced the series bearing his name more than a century and a half ago [1847]. These series and their generalizations continue to reveal remarkable and rich arithmetic properties. In this talk, Kudla will describe some of these, beginning with classical results of Hecke and Siegel relating Eisenstein series with theta series. More recent results and conjectures relating Eisenstein series and arithmetic geometry will also be discussed. The talk will focus on accessible examples in a more or less classical style.

Stephen Kudla received his PhD from SUNY Stony Brook in 1975 and, following a year at the IAS in Princeton, was a faculty member in the Department of Mathematics at the University of Maryland, College Park from 1976 to 2005. In 2006, he moved the University of Toronto. He was awarded a Sloan Fellowship in 1981, a Max-Planck Research Prize in 2000, and the Jeffrey-Williams Prize in 2009. He was a speaker at the ICM in Beijing in 2002 and became a Fellow of the Royal Society of Canada in 2011.