



Berlin
Mathematical
School

BMS Women In Mathematics

Lecture Series

29 January 2013 at 16:00

Tea and cookies will be served after the lecture

FU Berlin, R 140, Arnimallee 7, 14195 Berlin

Barbara Baumeister

(Universität Bielefeld)

From finite simple groups to Kac-Moody

Almost 150 years ago Sophus Lie introduced continuous transformation groups, the Lie groups, which were helpful in the study of differential equations. At about the same time Emilie Mathieu found the first five sporadic groups. In a gigantic proof it has been shown that the finite simple groups are the alternating groups; the finite versions of the Lie groups, obtained as automorphism groups of semi simple Lie algebras by Claude Chevalley; as well as their twisted analogues and the five Mathieu groups together with 21 more sporadic groups. Major tools in studying these groups are, besides local group theory, also geometric methods.

Independently Kac and Moody generalized the semi simple Lie algebras to infinite dimensional Kac Moody algebras. These together with the Kac Moody groups defined by Jacques Tits play an important role in mathematics as well as in physics.

In her talk, Barbara Baumeister will present old and new material on these groups, as well as recent results on the geometric methods used to study them.