Berlin Mathematical School

BMS Friday Colloquium

Friday 29 June 2012 at 15:15
BMS Summer Party after the lecture begins at 17:00

Audimax, TU Campus EUREF, Torgauer Str. 12-15, 10829 Berlin

Martin Bridson
(Oxford U)

A Story of Geometry, Complexity, and Imposters

The symmetries (automorphisms) of any mathematical object form a group, and arbitrary degrees of complexity can be encoded into finite group-presentations. So what can we say about the universe of all finitely presented groups; what flavours of mathematics should we use to organise and explore it; what monsters will we find; and can we encode arbitrarily monstrous behaviour into the subgroups of familiar groups such as SL $(n, \mathbb{Z})$?

If a mystery group has the same finite quotients as a group we know well, and we know that each finite subset of these groups injects into some finite quotient, must the groups be the same?

In this talk Martin Bridson will describe some of the major themes in the modern study of infinite groups, sketch the universe of finitely presented groups, and describe recent results concerning the last two questions. There will be geometry everywhere!

Martin Bridson is the Whitehead Professor of Pure Mathematics at Oxford University. His main research interests lie in geometric group theory, low-dimensional topology, and the study of metric spaces of non-positive curvature

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