Berlin Mathematics Research Center MATH+

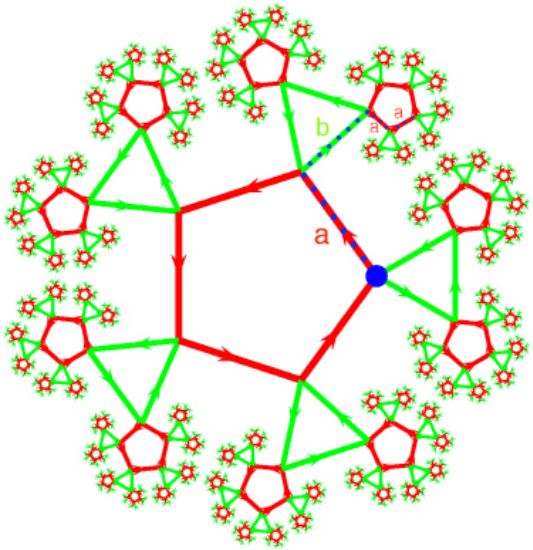
Berlin Mathematical School BMS

Kovalevskaya Colloquium

Friday, 29 November 2024 at 14:15

Urania Berlin, Old Wing (Altbau), 3rd floor, An der Urania 17

Tea & Cookies starting at 13:00



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Laura Ciobanu
(HWU)

Undecidable problems in group theory

There are important problems in group theory, and algebra more generally, which cannot be solved: that is, no algorithm exists that can provide a correct answer. This is mystifying, and one may ask why it happens, and when it happens.

In this talk, Ciobanu will present some of the problems known to be undecidable, from the word problem to solving group equations, in certain classes of groups. She will also describe how, although the obstacles appear insurmountable, there are lots of settings where the algebraic structure and geometric nature of the groups can make the problems decidable, and even lead to effective solutions.

Laura Ciobanu obtained her PhD in group theory from Rutgers University (USA) in 2005. Afterwards, she was a postdoctoral fellow in Barcelona at the CRM and at the University of Auckland, New Zealand. Between 2007 and 2016 she was at the Universities of Fribourg and Neuchâtel in Switzerland, first as a lecturer and then as a Swiss National Science Professor. She joined Heriot-Watt University in Edinburgh in 2016, where she is now Professor and Co-director of the Maxwell Institute.