Berlin Mathematical School

# BMS Friday Colloquium

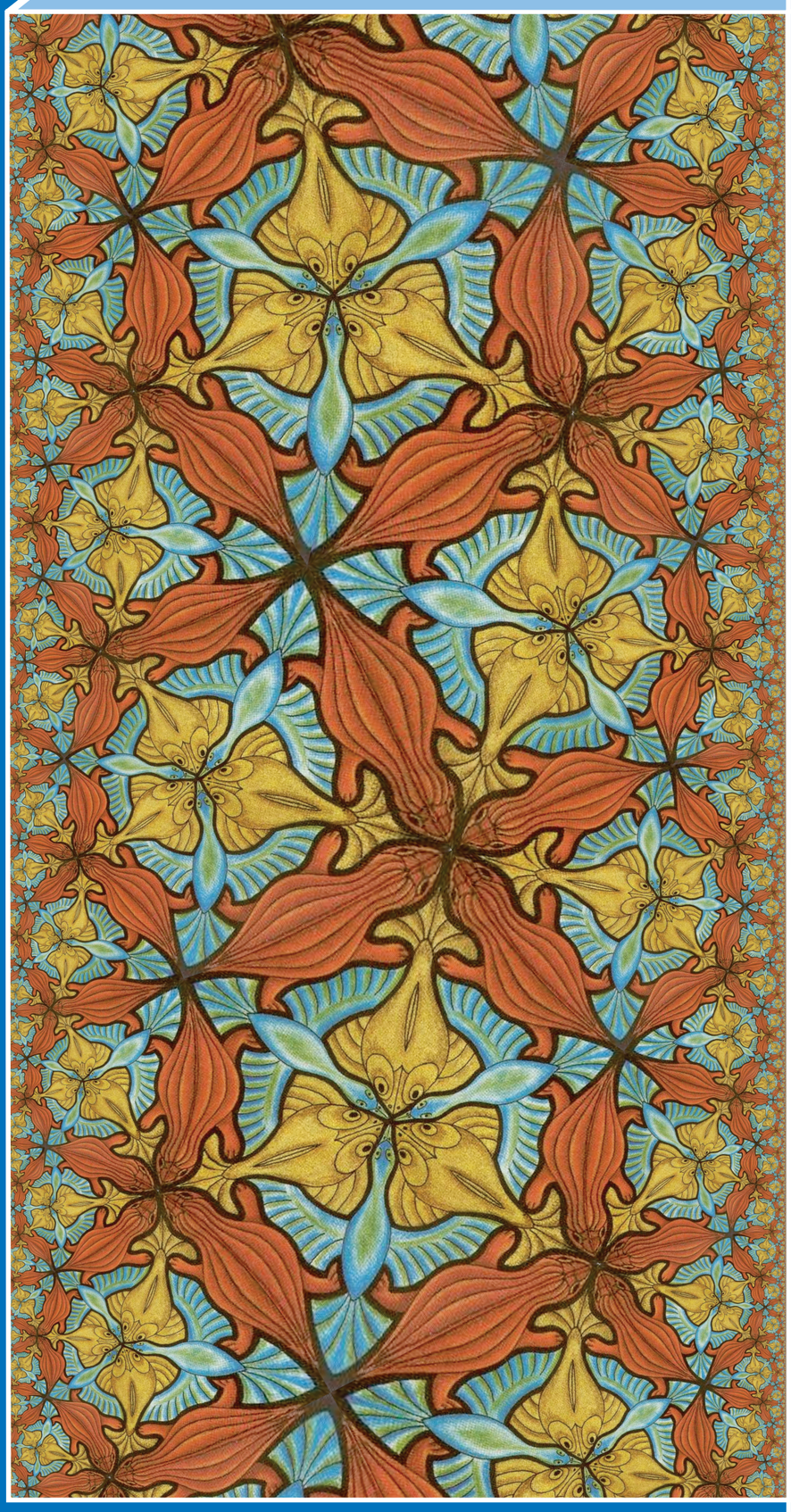
## Friday 15 December 2017 at 14:15

*Tea & Cookies starting at 13:00*

BMS Loft, Urania, An der Urania 17, 10787 Berlin

## Anna Wienhard

*(U Heidelberg)*



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### A tale of rigidity and flexibility: discrete subgroups of higher rank Lie groups

Discrete subgroups of Lie groups play an important role in various areas of mathematics. Lattices and discrete subgroups of finite covolume are fairly well understood and reveal a dichotomy of flexibility and rigidity. Lattices in SL(2,R) are flexible. Each lattice has a deformation space of positive dimension, which is closely related to the Teichmüller space of a surface. Lattices in SL(n,R) with n>2 are super-rigid due to a celebrated theorem of Margulis. It is rather difficult to comprehend discrete subgroups that are not lattices.

In her talk, Wienhard will discuss new developments in geometry, low-dimensional topology, number theory, analysis and representation theory that led to the discovery of several interesting families of discrete subgroups. These are not lattices, but – quite surprisingly – admit an interesting structure theory, which arises from a combination of flexibility and rigidity. A particularly exciting aspect is the discovery of higher Teichmüller spaces and their relation to various areas of mathematics.

Anna Wienhard is a German mathematician and professor at Heidelberg University. Her research interests include deformation spaces of geometric structures and discrete subgroups of Lie groups. Wienhard got her PhD from U Bonn in 2004, then held positions at U Basel and U Chicago. In 2007, she became an assistant professor at U Princeton, before moving to Heidelberg in 2012. Wienhard was a member of the Junge Akademie of the BBAW and Academy of Sciences Leopoldina (2009 – 2013), and became a fellow of the American Mathematical Society in 2012.

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