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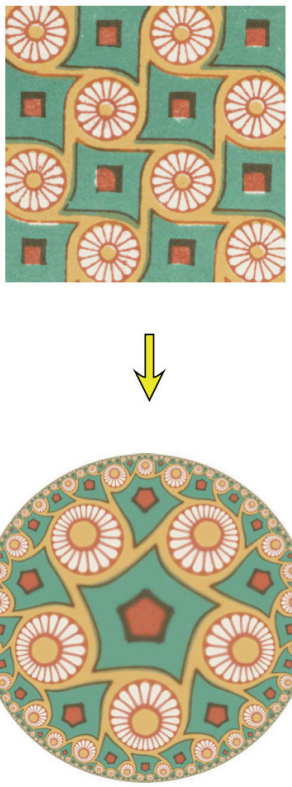

## BMS Days Talk

Monday, 15 February 2010, 10:00 am

BMS Loft, Urania
An der Urania 17, 10787 Berlin

**Jürgen Richter-Gebert** (TU München):

"Hyperbolization of Euclidean Ornaments"

Hyperbolic ornaments are a fascinating topic as well for mathematicians as for artists. With the creation of the prints Circle Limit I to Circle Limit IV the dutch artist M.C.Escher set a milestone of artistic representation of these structures. The story behind these pictures is a highly interwoven exchange of mathematics and arts. Unfortunately Escher only produces four of these pictures, since they are very hard to generate. Compared to that he created much more tiling patterns of the Euclidean plane. Fish, birds, lizards etc. whose repetition fills the plane perfectly.

This talk is a story about the 'dream of a perfect picture', by recycling artistic content. We will see how Euclidean wallpaper ornaments can be taken and by a mathematical procedure turned in a picture similar to the famous Circle Limit pictures. Along the way we will meet several fascinating mathematical topics, both classical and quite modern. Among them are Hyperbolic geometry and its symmetry groups, conformal mappings, hypergeometric functions, discrete differential geometry, circle packingsd, ray tracing, pattern recognition, projective geometry and many more. The whole project is joint work with Martin von Gagern.

Jürg Kramer, Humboldt-Universität zu Berlin
Christof Schütte, Freie Universität Berlin
Günter M. Ziegler, Technische Universität Berlin
http://www.math-berlin.de