Berlin Mathematical School

BMS Friday Colloquium

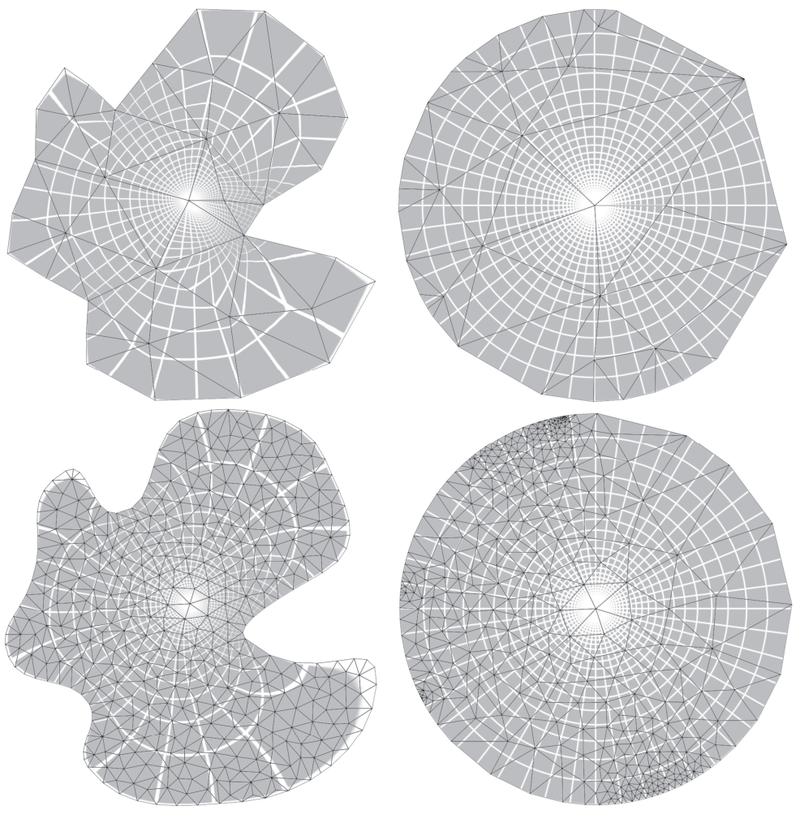
Friday 15 November 2013 at 14:15

Tea & Cookies starting at 13:00

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

Boris Springborn

(TU Berlin)



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Discrete Conformal Maps

Conformal maps between planar domains or surfaces play a fundamental role in mathematics. “Conformal” means “angle preserving”, and in two dimensions, this property is essentially equivalent to complex differentiability.

The field of discrete differential geometry is developing on the interface between discrete geometry and differential geometry. The aim is to find discrete analogs of classical notions and methods of differential geometry. The discrete theory should reflect fundamental aspects of, and be as rich as, its smooth counterpart, and it should converge to the smooth theory in some limit.

Attempts to discretize the theory of conformal maps and complex analysis go back to the early finite element literature. In his talk, Springborn will focus on a more recent theory of discrete conformal maps that is based on a notion of discrete conformal equivalence for triangle meshes. Two triangle meshes are considered conformally equivalent if the edge lengths are scaled according to scale factors associated to the vertices. Springborn will outline the salient features of this surprisingly rich theory, its connections with hyperbolic geometry, and applications.

Boris Springborn is a professor of mathematics at TU Berlin, specializing in geometry. His research interests include circle packings and discrete Riemann surfaces. He did his doctorate and habilitation at TU Berlin. After one year at U Bonn and one and a half years as a professor at TU München, he returned to Berlin in 2013. He is a member of the SFB/TR 109 “Discretization in Geometry and Dynamics“, a joint project between TU Berlin and TU München.

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