



Berlin
Mathematical
School

BMS Days 2016

Tuesday 16 February 2016

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

11:00 Jörg Liesen (TU Berlin)

15:30 Daniela Egas Santander (FU Berlin)

Jörg Liesen: Rational harmonic functions and their applications in gravitational lensing

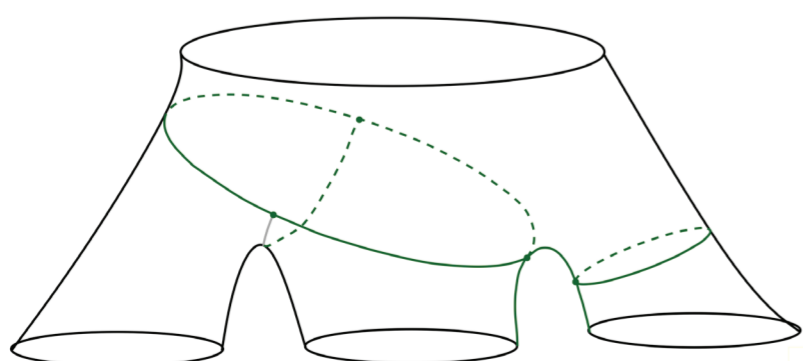
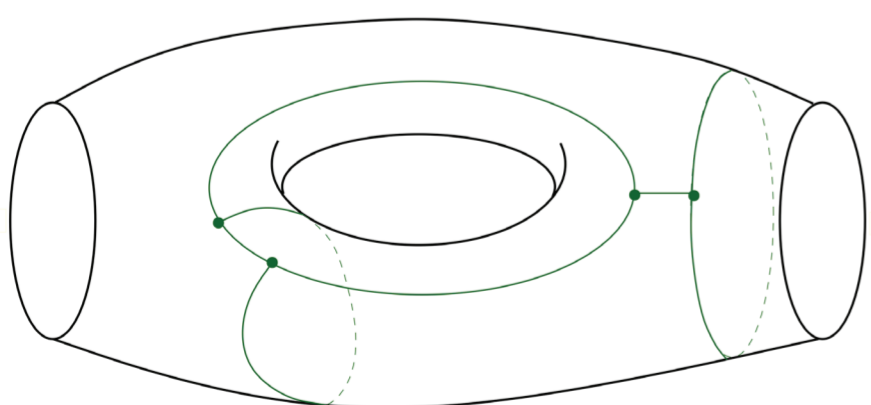
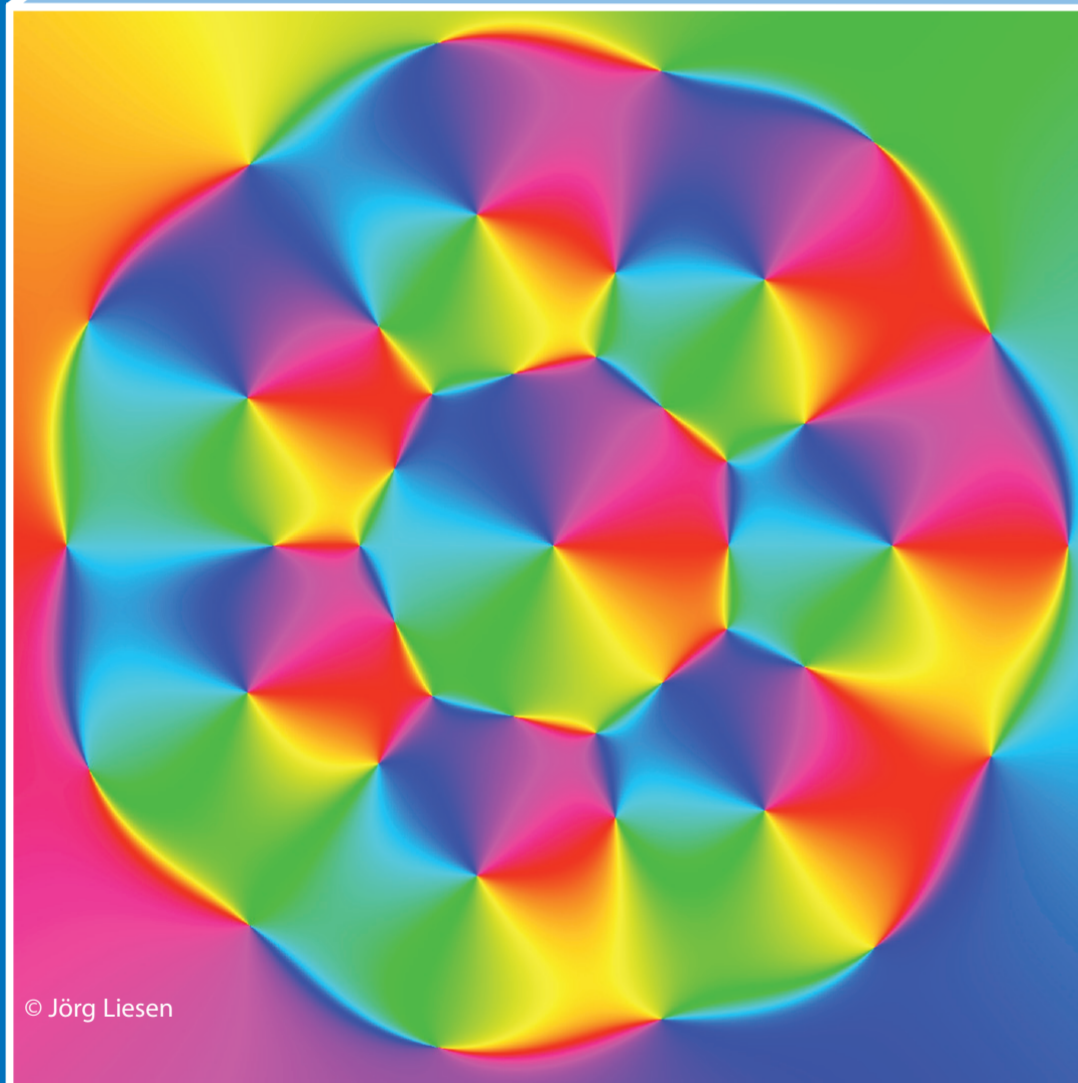
In his talk, Liesen will discuss recent results on the zeros of rational harmonic functions $f(z) = r(z) - \bar{z}$, where $r(z)$ is a rational function. Such functions have fascinating applications in the theory of gravitational lensing. Liesen will focus on extremal functions, where $r(z)$ is of degree $n \geq 2$ and $f(z)$ has the maximal possible number of $5n-5$ zeros. Examples will be visualized using phase portraits, and the implication of the results in the theory of gravitational lensing will be discussed.

Jörg Liesen is a professor of numerical linear algebra at TU Berlin. His research interests include the convergence and stability analysis of iterative methods, and the theory and computation of matrix functions.

Daniela Egas Santander: Combinatorial models of moduli space

The moduli space of Riemann surfaces is a classical object in mathematics. It is related to the classification of Riemann surfaces as well as conformal field theories in mathematical physics. However, this space is not yet fully understood. In her talk, Egas Santander will describe how combinatorial models can be used to give further insight into the homotopy type of these spaces and their operadic structure.

Daniela Egas Santander is a BMS Dirichlet Postdoctoral Fellow. She works at FU Berlin in Holger Reich's algebraic topology group. Her research areas include moduli spaces, configurations spaces and combinatorial topology.



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