



Gastvorträge

Donnerstag, 30. September 2021
Hörsaal 414

10:00 Uhr

Dr. Henrik Schumacher (Universität Chemnitz)

Repulsive Curves and Surfaces

I am going to report on recent work on the numerical optimization of tangent-point energies of curves and surfaces. After a motivation and brief introduction to the central computational tools (construction of suitable Riemannian metrics on the space of embedded manifolds, a polyhedral discretization of the energies, and fast multipole techniques), I am going to show a couple of numerical results. Not much about the shape of minimizers has been known so far. So, for the first time, we will be able to admire the beauty of the energies' minimizers and gradient flows.

This is based on joint work with Philipp Reiter (Chemnitz University of Technology) and Caleb Brakensiek, Keenan Crane, and Chris Yu (Carnegie Mellon University, Pittsburgh).

11:00 Uhr

Prof. Dr. Philipp Reiter (Universität Chemnitz)

Symmetric Elastic Knots

We minimize the bending energy within knot classes while prescribing dihedral symmetry. It turns out that the dihedral elastic trefoil is the union of two circles that form a (planar) figure eight. We also discuss possible extensions to other symmetries and knot classes.

This is joint work with Alexandra Gilsbach and Heiko von der Mosel.