# Seminar: Minimal surfaces

Minimal surfaces are (2-dimensonal) surfaces in space, or in Riemannian manifolds, which locally minimize their area. From the 18th century, their study has motivated much progress in the fields of first complex analysis, and later differential geometry. They are the natural next step after (1-dimensional) geodesics, kind of like how strings extend particles in physics, or the complex plane extends the real line. This course will cover two major developments of the 20th century: first, the development of differential geometric methods to understand what minimal surfaces can't look like, and the many applications of these results. Second, starting in the 1970s and growing today, the revival of classical complex-analytic methods find tons of new examples of how they *can* look, such as the Costa surface below discovered in 1982. As part of the course, you will have a chance to try to produce your own new minimal surfaces, and to 3d print them.

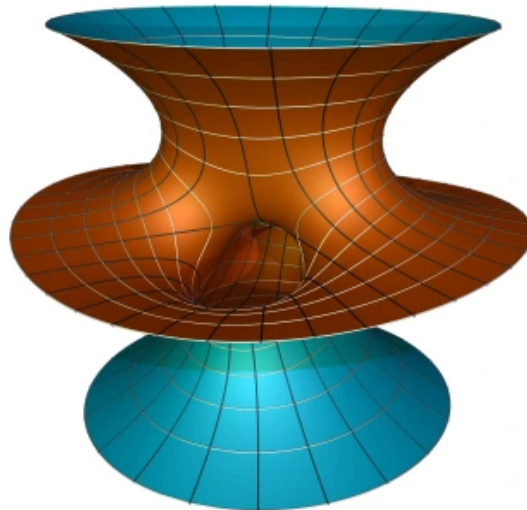**Introductory meeting:** Friday, Oct.10, 2022, at 9:15 AM, in Seminarraum Statistic 02/104. Please indicate your interest in Muesli (lecture 1556) or via email (psmillie@mathi.uni-heidelberg.de).



Image credit: Matthias Weber https://minimalsurfaces.blog/