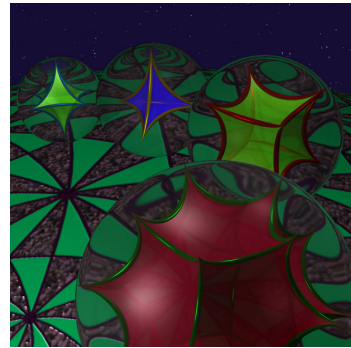


Oberseminar Geometrie
Department of Mathematics
University of Fribourg
Seminar room, Math II (Lonza)
Wednesday March 21, 2018, 10:20-12:00



ROMAN PROSANOV (Fribourg)

From cusped hyperbolic surfaces to convex ideal Fuchsian polyhedra

The Alexandrov theorem states that every flat metric on the 2-sphere with conical singularities of positive curvature can be uniquely (up to isometry) realized as the induced metric on the boundary of a 3-dimensional convex polytope. Various authors generalized this result to the case of hyperbolic metrics on surfaces. We are interested especially in hyperbolic cusp-metrics. Igor Rivin proved that every cusp-metric on the 2-sphere can be uniquely realized as the induced metric on the boundary of a convex ideal polytope in \mathbb{H}^3 . To generalize this statement to higher genus surfaces S_g , one needs to find an appropriate analogue of the notion of ideal polytope. It is possible to consider polytopes not only in \mathbb{H}^3 , but also in non-compact three-dimensional hyperbolic manifolds called *Fuchsian manifolds*. The boundary of such a polytope (called *Fuchsian polytope*) is homeomorphic to two copies of S_g with punctures. Jean-Marc Schlenker proved that every hyperbolic cusp-metric on S_g with $g > 1$ can be uniquely realized as the induced metric on both components of the boundary of a Fuchsian polytope. In our talk we will discuss a new proof of this result.