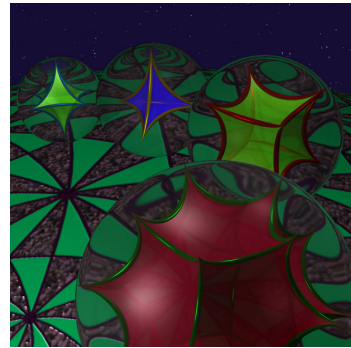


Oberseminar Geometrie
Department of Mathematics
University of Fribourg
Seminar room, Math II (Lonza)
Wednesday September 19, 2018, 10:20-12:00



ADRIEN MARCONE (EPFL)

Lipschitz-Killing curvatures and Gauss-Bonnet-Chern theorem for Riemannian manifolds with conical ends

The first part of the talk will be dedicated to the Lipschitz-Killing curvatures of a Riemannian manifold. These are intrinsic quantities depending on the curvature tensor and they can be defined in terms of contractions of double-forms. We will present several of their properties which can be of interest when dealing with the Riemannian setting. The Lipschitz-Killing curvatures can also be constructed by pulling back on the manifold some differential forms defined on its frame bundle. This construction is particularly useful in view of the Gauss-Bonnet-Chern theorem.

In the second part, we will present a Gauss-Bonnet-Chern theorem for Riemannian manifolds with conical ends. Those are non-compact manifolds but with a sufficiently strong control of the geometry at infinity allowing the total curvature to converge. The Lipschitz-Killing curvatures of some compact submanifolds appear naturally in this formula, providing an explicit quantification of the Gauss-Bonnet defect i.e. the difference of the Euler-characteristic and the total curvature.