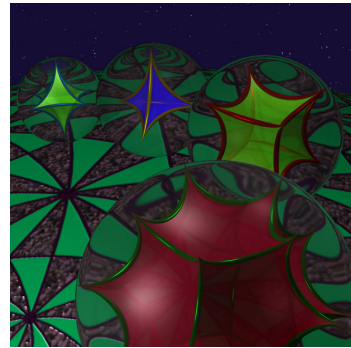


Oberseminar Geometrie
Department of Mathematics
University of Fribourg
Seminar room, Math II (Lonza)
Wednesday May 1, 2019, 10:20-12:00



IVAN IZMESTIEV (Fribourg)

Conics, billiards, and Liouville metrics

The family of confocal ellipses and hyperbolas has several nice geometric properties, such as

- *Graves property*: the trajectory of a billiard ball inside an ellipse is tangent to a confocal conic;
- *Ivory property*: the diagonals of a curvilinear rectangle formed by two ellipses and two hyperbolas have equal length.

The same properties hold more generally for all Liouville nets (for example, non-Euclidean confocal conics or curvature lines on an ellipsoid). Vice versa, if two transverse foliations possess Graves or Ivory property, then these foliations form a Liouville net.

In this talk I will discuss the equivalence between the Graves, Ivory, Liouville, and a less well known Poritsky property.

This is the subject of an ongoing project with Alexei Glutsyuk and Sergei Tabachnikov.