Bern-Fribourg Graduate Seminar

a seminar for Master and PhD students

Thursday 17$^{\text{th}}$ November, 2022: 17:15 - 18:00

Room 2.52, Perolles 08, Fribourg

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Positive Ricci curvature and surgery

Abstract

Ricci curvature is a notion of curvature that appears in many contexts in geometry and also has connections to other branches of mathematics, such as analysis, topology and mathematical physics. It is therefore natural to ask, which manifolds admit a Riemannian metric whose Ricci curvature satisfies certain given conditions, such as being positive or negative. On the other hand, surgery is a topological concept: it is a procedure to modify manifolds by certain cut and paste operations that is widely used in differential topology, for example in the classification of manifolds. In this talk I will introduce the notions of both Ricci curvature and surgery and then show how surgery can be used to construct many examples of Riemannian manifolds with positive Ricci curvature.