

## **Oberseminar Geometrie**

Department of Mathematics

University of Fribourg

Physics 2.52

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### **Intermediate curvatures and Gromov's Betti number bound**

Gromov's Betti Number Theorem states that the total Betti number of a Riemannian manifold with non-negative sectional curvature is bounded by a constant that only depends on the dimension. By using surgery, it was shown by Sha and Yang that this result does not hold for the weaker condition of non-negative Ricci curvature. In this talk we consider intermediate curvatures that interpolate between sectional and Ricci curvature and provide a range of new curvature conditions that allow a finer distinction. By establishing a surgery result for these curvature conditions, we show that Gromov's Betti number bound also fails to hold if we move from non-negative Ricci curvature to roughly halfway towards non-negative sectional curvature. This is joint work with David Wraith.