

Scalar curvature: Analysis, geometry and topology in interaction

Abstract:

The notion of curvature plays a central role when studying the geometry of surfaces and more general manifolds. Global topological properties of the underlying space often put limitations on its geometric shape. This is shown by the Gauß-Bonnet formula for surfaces, for example.

We illustrate this interplay in higher dimensions in connection with the simplest curvature invariant, the scalar curvature.