



Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 22. Januar 2019

17 Uhr s.t., Geom H4

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Local to global formulas in geometry and number theory

Abstract:

A classical example of local to global formula in geometry is the Gauss-Bonnet theorem: the topological Euler characteristic of a compact Riemannian surface is computed as the integral of the Gauss curvature. The Gauss curvature is a local invariant, and the Euler characteristic is a global invariant. Integration is a globalization operation. In number theory, a notorious example is the analytic class number formula, expressing the residue of the zeta function of a number field in terms of global invariants of it (discriminant, regulator, etc.). In this lecture I will begin by recalling these two facts. I will then try to convince the audience that these formulas are somewhat similar. Although I don't know of a common formalism that explains both, we will see that another local to global formula, this time in arithmetic geometry, has strong connections or analogies with Gauss-Bonnet and the analytic class number formula. The formula in question is called arithmetic Riemann-Roch theorem, and we will spend a substantial part of the talk in giving an idea of what this is about, and conclude with the promised analogy and an intriguing question.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.