
BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

Thursday 5th October, 2023: 17:15 - 18:00

Room 2.52, Perolles 08, Fribourg

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Elkies' theorem on integral lattices and the topology
of 4-manifolds.

Abstract

Elkies' theorem on integral lattices says that an unimodular, positive definite integral lattice without short characteristic vectors is isometric to the Euclidean lattice \mathbb{Z}^n . Remarkably, while the statement is purely algebraic, the original motivation was topological, and the proof complex-analytic. In the talk we will present this result and discuss the historic motivation that led to its discovery: the study of smooth 4-manifolds, Seiberg-Witten theory and Donaldson's diagonalization theorem. If time permits, we will also give a sketch of the proof.