ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to a Guest Lecture

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"The spherical packing problem on tori"

N.2.35 Wednesday, 18 September 2024 11:00 a.m.

Abstract
How can we arrange spheres in a way such that they fill out as much space as possible? This age-old mathematical question has a lot of applications, not only in mathematics, but also in physics and other areas of natural science. The problem has been studied in many interesting spaces, for example in finite fields, on the sphere and in the Euclidean space. In recent times, a lot of progress has been made, for example, by the winner of the Fields medal Maryna Viazovska, who solved the problem in the eight dimensional Euclidean space. In my talk, I want to consider this problem on spaces that are given by the Cartesian product of spheres. We will look at a family of dense packings and discuss how to verify their optimality using semidefinite programming, harmonic analysis and sum-of-squares techniques. Furthermore, we will relate this problem to other packing problems in different spaces. Joint work with Fernando Mário de Oliveira Filho, Frank Vallentin.

Angelika Wiegele and the Department of Mathematics look forward to seeing you at the talk!