Packings, aperiodic tilings and their finite approximations.

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L01 Carson Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

The central problem of sphere packing theory is to determine the densest packings by balls of a fixed radius r in Euclidean space. In papers going back to the 1940s many researchers expressed belief that there was no meaningful analogous theory in the hyperbolic space setting. Guided by concepts from the study of aperiodic tilings, C. Radin and I developed such a theory. However, there are many differences with the Euclidean case and it is not known whether the densest packings are "approximately" periodic. This question is connected with deep problems in diverse areas of mathematics.

This talk should be accessible to undergraduates.