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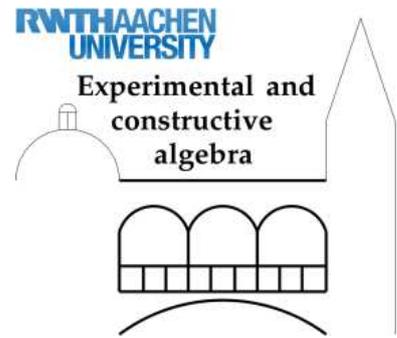
Experimentelle und konstruktive Algebra

RWTHAACHEN
UNIVERSITY

Experimental and
constructive
algebra

Kolloquiumsvortrag

Dienstag, 19. April 2016, 14:00 Uhr, SeMath

Derek Smith (Lafayette College, Easton, Pennsylvania, USA; zur Zeit Universität Bremen):
Integer Distance Problems and Planar Embeddings

There are many classic unsolved problems in low-dimensional geometry whose statements are easy to comprehend because they simply ask that certain quantities be integers or rational numbers. For example, a 3-by-4 rectangle is "perfect" because its edge and diagonal lengths are integers; but does a perfect box exist, one whose edges, face diagonals, and body diagonals all have integer lengths? For another example, is there a point inside of a unit square that is a rational distance from each of the four corners of the square?

In this talk, I will focus on some ideas related to a problem of Erdös: If n is positive integer, when does there exist a set M of n points in the plane, no three on a line and no four on a circle, such that all of the distances between pairs of points are integers? I will highlight some recent work that might assist the search for these sets, namely conditions that guarantee that a congruent copy of M embeds in a naturally corresponding ring of algebraic integers.

Wir laden alle Interessierten herzlich ein.