Rational Points Near Planar Curves

Prof. Niclas Technau, University of Wisconsin-Madison

Fix your favourite smooth, compact curve C in the plane. How many rational points of a prescribed denominator size are in a given neighbourhood of C? In the first part of the talk, we motivate this question and discuss a simple random model predicting the answer. In the second part, we use (purely) analytic and geometric tools to approach the question. Special emphasis will be placed on explaining the role of the Fourier transform of the surface measure