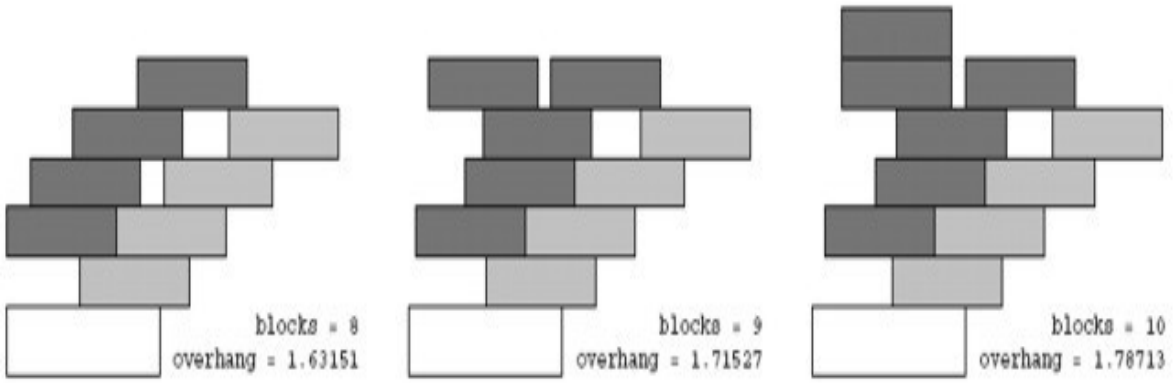
The SUMO Speaker Series for Undergraduates

(Pizza Provided)
Wednesday, January 12th
4:15-5:05, room 380C

Maximal Overhang

Professor Brian Conrad



ABSTRACT:

It is commonly believed that the maximal overhang for an arrangement of n rectangular blocks stacked over the edge of a table is attained by the harmonic stack arrangement whose overhang past the edge grows logarithmically (and hence unboundedly) with the number of blocks. But this maximality rests on an implicit assumption about the way the stack is built, namely that there is only one block per layer.

What if we consider the n-block problem on its own, without implicit assumptions related to the construction process? In 2009 it was discovered that when one can do much much better, making arrangements of n blocks whose overhang is on the order of n^(1/3), and that this is the correct order of magnitude for maximal overhang as n grows.

In the talk, after reviewing some of the back story related to the harmonic stacking, we will describe constructions which blow it away (asymptotically) in terms of overhang and will precisely state the rigorously proved optimality result (which won a prize for its authors at the Joint Meetings of the math societies last weekend).

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