Undergraduate Math Club
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East Hall 1360
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Irrational Triangular Billiards

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Abstract

The triangular billiards problem, which goes back to the 18th century, asks whether or not every triangular shaped billiard table has a periodic billiard path. The answer is known to be "yes" for acute triangles, right triangles, and triangles whose angles are all rational multiples of π. In my talk I will demonstrate a computer program, McBilliards, written by Pat Hooper and myself, which searches for periodic billiard paths in triangles. McBilliards reveals a number of new results about the triangular billiards problem. I will explain some of these results, and will discuss how sometimes the experimental evidence can be converted into theorems with rigorous proofs.