

Undergraduate Mathematics Colloquium

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“Mathematics and Tightrope walking”

Friday October 21

Talk at 4:00 in Herman Brown 227

Tea at 3:30 in Herman Brown 438

ABSTRACT: In 2015, Freddy Nock broke a world record by walking the highest tightrope so far, between two mountain peaks in the Swiss alps. While this requires a lot of skill and courage, mathematics suggests another way of doing the walk that requires a lot less balance and guts. This is connected to Nobel prize laureate Pyotr Kapitza's work on the stability of the inverted pendulum. In my talk, I will show how to describe Kapitza's pendulum mathematically and how a surprising stability effect arises. A little bit of Math 211 (phase-plane diagrams) and basic knowledge in mechanics is helpful.

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