The Math Colloquium
Department of Mathematics
San José State University

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Navigating Blindly

October 22, 2008, MH320

Abstract: Consider a robot, Bob*, that has to get from its start position S to a certain target point T. At all times, Bob knows its location via a global positioning system. We examine the situation when Bob has only tactile sensors and no visual sensors. In particular, Bob does not know the locations of any obstacles until it touches them. We discuss some known algorithms for mobile robot navigation in 2 dimensions. Further, we present complexity estimates for higher dimensional environments, and describe some new algorithms in this setting.

Background: No particular background will be assumed, and undergraduates at all levels are encouraged to attend.

About the speaker: Lucas Sabalka received his doctorate from the University of Illinois at Urbana-Champaign for his dissertation on graph braid groups, and is now a Krener Assistant Professor at UC Davis. He works in geometric group theory and low-dimensional topology, and has recently been interested in topological robotics.

Snacks in MH331B at 2:30 pm
Talk starts at 3 pm

`http://www.math.sjsu.edu/~hsu/colloq/`

Note: This is part two of our special two-part series on abstract algebra and killer robots. All members of the SJSU mathematical community are urged to attend so they may better learn to protect themselves from the inevitable robot uprising against humanity.

*Bob may or may not be a killer robot.