



The Math Colloquium
Department of Mathematics
San José State University



Valerie Peterson

Univ. of Illinois at Urbana-Champaign

*Geometry, Topology, Group Theory,
and Killer Robots*

OCTOBER 8, 2008, MH320

Abstract: In certain manufacturing settings one encounters the very practical problem of having to coordinate robotic agents so as to accomplish an assembly task without collisions (though these robots are typically *nonviolent*... sorry). This robotic coordination problem motivates a larger mathematical exploration into how to coordinate moving agents in more general settings. In this talk, we'll see a variety of such settings and introduce a cube complex called the *state complex* that coordinates independent movements. We'll also discuss some of the interesting topological, geometric, and group theoretic properties of state complexes (providing appropriate definitions).

Background: Undergraduates may benefit from some knowledge of abstract algebra, but the only requirement is a fondness for visual aids and pretty pictures.

About the speaker: Valerie Peterson is a San Jose native who moved to the midwest after completing her undergraduate work at Santa Clara University. She is currently finishing her Ph.D. at the University of Illinois at Urbana-Champaign.

SNACKS IN MH331B AT 2:30 PM

TALK STARTS AT 3 PM

<http://www.math.sjsu.edu/~hsu/colloq/>

Note: This is part one 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.