**The Math Colloquium**
**Department of Mathematics**
**San José State University**

# Javier Arsuaga

## SFSU

*Knot theory and DNA packing*

## April 18, 2012, MH320

**Abstract:** One of the main challenges in mathematical biology is to understand the basic principles of chromosome organization. Two organisms are distinctive for having their genomes organized in a sophisticated topological fashion: P4 viruses have their DNA knotted and trypanosomes have their mitochondrial DNA organized into a gigantic network of linked minicircles. In this talk I will present experiments, computational methods, and analytical results that we have developed to explain the formation and the biological relevance of knots in DNA extracted from bacteriophage P4. I will also introduce a novel theoretical model for the formation of networks in trypanosomes.

   *Background:* One semester of calculus.

**About the speaker:** Javier Arsuaga is Assistant Professor of Mathematics at San Francisco State University. His research is highly interdisciplinary and combines topology, stochastic processes and statistics, and computational mathematics to analyze biological data.

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

For more information, see our full schedule at:

http://www.math.sjsu.edu/∼hsu/colloq/