



The Math Colloquium
Department of Mathematics
San José State University



Julie Mitchell

BACTER Institute, Univ. of Wisconsin

*Using Higher Calculus to Study
Biologically Important Molecules*

MAY 5, 2010, MH320

Abstract: Proteins perform many important biological functions by binding to other proteins. Each protein has a distinct geometry and surface chemistry that allows it to attract or repel other molecules. This talk will describe how concepts from calculus, like functions, derivatives and local minima, can be used to study proteins. Using functions that describe the physical forces of attraction and repulsion, we can optimize the favorable interactions between a pair of protein structures in order to predict how they might bind.

Background: Students should be familiar with calculus, including derivatives, local minimization, and exponentials.

About the speaker: Julie Mitchell is an Associate Professor of Mathematics and Biochemistry and Director of the BACTER Institute at the University of Wisconsin. She received her B.A. in math from SJSU in 1992 and her Ph.D. at UC Berkeley in 1998, and she did a postdoc at UCSD. Her academic honors include Hoggatt and Dieckmann scholarships from SJSU and a Sloan Foundation Award in Molecular Biology.

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/>