

# The SUMO Speaker Series for Undergraduates

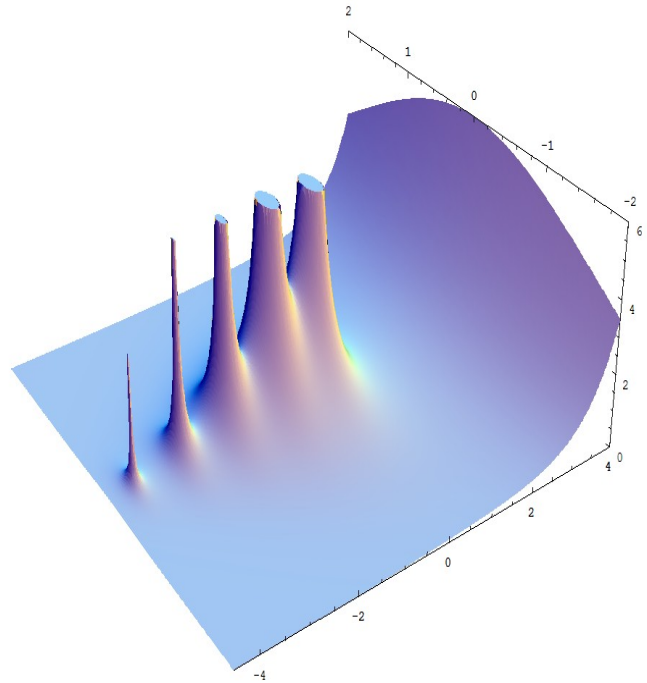
Wednesday, December 3<sup>rd</sup>  
4:30-5:30, room 380C (in the basement)

## Extending $n!$

Professor Benedict Gross  
Harvard University

### ABSTRACT:

One of the early triumphs of the integral calculus was an estimate for the growth of the function  $F$  on the positive integers defined by  $F(n) = n! = n \cdot (n-1) \cdot (n-2) \dots 3 \cdot 2 \cdot 1$ . Euler was able to give a more precise estimate of the growth by defining an extension of this function, from the positive integers to the positive real numbers. I will describe Euler's gamma function, and discuss its values at rational arguments. I will also define an analogous extension of  $n!$  to a function on the p-adic integers.



Food from Pizza Chicago

Contact Nathan Pflueger ([pflueger@stanford.edu](mailto:pflueger@stanford.edu)) for more information.