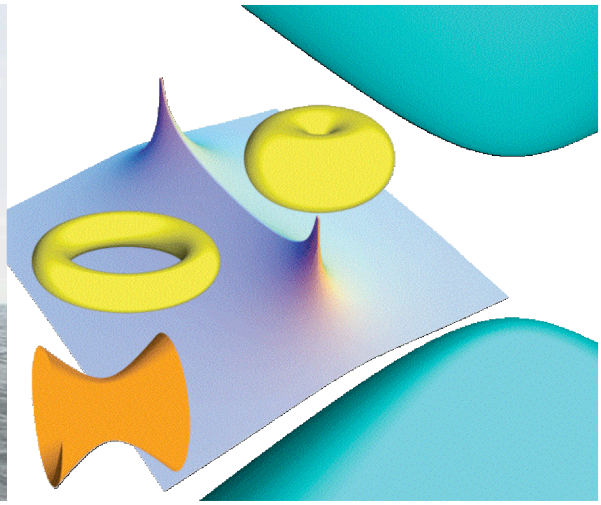
The SUMO Speaker Series for Undergraduates

(food from Pizza Chicago)
Wednesday, January 27
4:40-5:30, room 380C

Murphy's Law in Geometry

Prof. Ravi Vakil



Abstract: Geometric objects often have "parameter" or "moduli" spaces. For example, lines in the plane can be written as ax + by + c=0, where a and b are not both zero, and two equations describe the same line if one is a nonzero multiple of the other. In any reasonable example you come up with, the parameter space is smooth, and based on experimental evidence like this, geometers tend to believe (or conjecture, or try to prove) that the moduli space of their favorite kind of object is smooth. Sadly, this can go horribly wrong: in some sense, most interesting moduli spaces that are not known to be smooth for "easy" reasons are as non-smooth as can be, a phenomenon, known as "Murphy's law in geometry". I will begin by telling you what "moduli spaces" and "deformation spaces" are, and will end with one of my favorite theorems of all time, Mnev's impossibility theorem, which is basically Murphy's law for points and lines in the plane.

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