The SUMO Speaker Series for Undergraduates
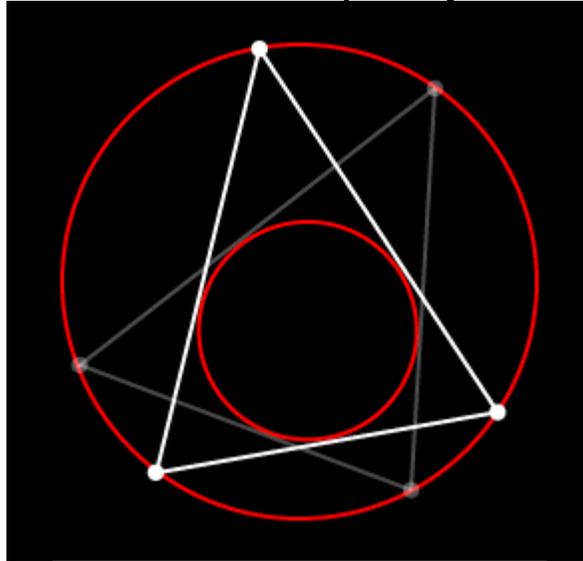
(Food Provided)
Wednesday, January 18th
4:15-5:05, room 380C

Poncelet's Porism

Arnav Tripathy

ABSTRACT:
Consider a triangle whose vertices all lie on some large circle C and whose sides are all tangent to some smaller circle C'. Then, starting with any other point P on C, one can find Q and R also on C such that PQ and PR are tangent to C'. We now have the amazing fact that QR is always tangent to C', so that we get a whole family of triangles with the same circumscribed and inscribed circles! I shall present a proof of this charming observation in purely synthetic Euclidean geometry and, if time permits, a natural three-dimensional analogue. Of course, the proof given shall not be within purely synthetic Euclidean geometry; rather, I hope to also provide a gentle introduction to some elementary but beautiful aspects of classical algebraic geometry.

sumo.stanford.edu/speakers