

Dynamical Systems Seminar

Wednesday, November 6, 2019
11:00-11:50 am, Hume 321

The Poincaré-Birkhoff Theorem: from celestial mechanics to symplectic topology

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Abstract: I will present a theorem that was conjectured by Poincaré in the last year of his life (1912), and then proved by Birkhoff. Poincaré is considered to be one of the founders both of topology and of dynamical systems, and this theorem beautifully combines both of these areas. The problem arose in Poincaré's study of the N-body problem of studying N masses that interact according to Newton's law of gravitational attraction. This theorem is arguably the first theorem of symplectic topology. I will use this topic to introduce some current topics of work.

The talk will be accessible to graduate students. In particular, I will not assume any prior knowledge of topology or dynamical systems.