

Stanford University Mathematical Organization (SUMO) Speaker Series

# An Introduction to Morse Theory

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4–5 PM @ 380-382T

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## Abstract

What can a (real valued) function tell you about topology (and vice versa!)? Morse theory tries to answer these questions on smooth manifolds by studying critical points of special (so-called Morse) smooth functions. In this talk we'll introduce the objects of Morse theory, and then construct an algebraic invariant associated to a manifold with a Morse function called its Morse homology. Time permitting we'll say something about this object's connection to other notions of homology, and describe some applications of these ideas.