

## **abstract**

GEOMETRY/DYNAMICAL SYSTEMS

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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The problem of capture in the planar restricted three-body problem is addressed. In particular, weak capture is described, which occurs at a complicated region called the weak stability boundary, where the motion is chaotic in nature. It was first estimated in 1986. The dynamical structure of weak stability boundary has been elusive due to several reasons. However, recent results by Garcia , Gomez (2007) and Belbruno, Gidea, Topputo (2010) are described which show that this boundary may be equivalent to a hyperbolic invariant set that plays a key role in the dynamics of the restricted problem. We also describe how the process of weak capture was motivated by a problem related to spacecraft motion which has proved to have important applications.