

1106-70-1562      **Elizabeth Zollinger\*** (ezollinger@sjcny.edu). *Family of Orbits in the Newtonian 3-Body Problem.*

In this talk we give the topology of a family of periodic orbits in the planar Newtonian three body problem, known as “comet” orbits, where one body (the comet) orbits the binary system formed by the other two. The original proof of existence uses the Implicit Function Theorem with the distance between the bodies of the binary pair as the small parameter and hence applies only when the distance is small. By using the Principle of Least Action and variational techniques, we can extend the existence proof of orbits where the comet comes close to the binary pair. All of these orbits have the same topology and they can be deformed into each other without passing through collision. (Received September 14, 2014)