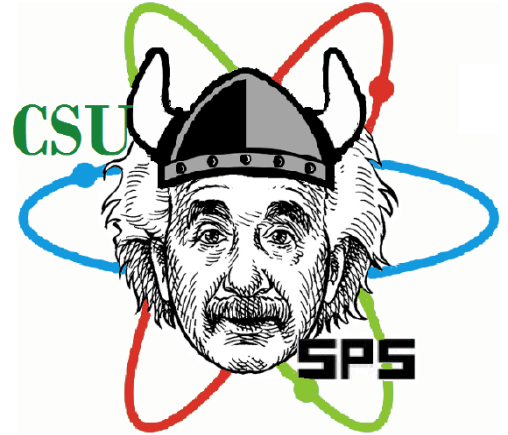


# The Society of Physics Students presents a Guest Speaker Seminar

From the elliptical trajectories of bound states of planets around the sun to elliptical trajectories of bound states of light inside a microparticle



## Dr. James Lock

Professor Emeritus, Physics  
Department, CSU



Where: **SR 151**

When: **Thursday**

**March 10, 2016**

**11:30-12:15**

**Pizza and Soda provided!**

**Abstract:** From the classical mechanics course, one learns about the bound orbits of planets around the sun, and from the quantum mechanics 1 course, one learns about the bound states of electrons around the nucleus. It turns out that the equations describing electromagnetic waves share some of the features of various classical mechanics equations and some features of the analogous quantum mechanical equations. These ideas can be put together pictorially to understand pseudo-bound states of light inside a spherical or cylindrical microparticle, which were first observed almost forty years ago. When the refractive index of the microparticle depends on the radial coordinate, the trajectories of light rays in these pseudo-bound states can take on very interesting properties.