The Geometry of the Adjoint Representation of SE(3)

Speaker: Jon Selig

Abstract: This talk will consider the adjoint representation of SE(3) as an algebraic variety, that is an open set in a projective variety. In order to do this efficiently a seven dimensional representation of the group will be considered first. This representation is the appropriate representation to use when considering the action of the group on directed lines sometimes called spears. Explicit birational maps will be given between various representations, the Study quadric, the homogeneous representation and the 7-D on directed lines. The work will be motivated by a problem concerning the number of configurations of a hybrid mechanism.