

Pathways Lecture Series in Mathematics, KEIO



Speaker : **Prof. Alan Weinstein**
(University of California, Berkeley)

Place : Room 14-203, 2nd Floor, Bldg.14
Faculty of Science and Technology
KEIO University

Lecture 1 14 : 45 – 16 : 15 January 15, 2008 (Tuesday)

Lecture 2 16 : 30 – 18 : 00 January 15, 2008 (Tuesday)

Groupoid symmetry for Einstein's equations?

The solutions of the constraint equations in the 3+1 formulation of Einstein's equations form a coisotropic subvariety in the cotangent bundle of a space of metrics. This situation resembles that for the zero set of a momentum map for a hamiltonian action, but the formalism does not really work when the symmetry group is taken to be the 4-dimensional diffeomorphisms. In this talk, I will report on ongoing work with Christian Blohmann (Regensburg) and Marco Cezar Fernandes (Brasilia). We are attempting to show that the constraint set is the zero set of the momentum map for the action of a groupoid related to the groupoid of diffeomorphisms between all pairs of hypersurfaces in space-time.