When the (Einstein) equations for a Ricci-flat space time are expressed as hamiltonian evolution equations in $T^*\mathcal{M}\Sigma$, where $\mathcal{M}\Sigma$ is the space of metrics on a 3-manifold $\Sigma$, the initial conditions must belong to the constraint set $\mathcal{C}$. The constraint set is coisotropic and resembles in many ways the zero level set of the momentum map for a hamiltonian action, but there seems to be no symmetry group which realizes the constraints, nor even a Lie algebra.

In this talk, I will report on joint work with Blohmann and Fernandes in which we realize the constraints using a symmetry Lie algebroid related to a groupoid of diffeomorphisms between hypersurfaces.

We introduce the axiomatics of the categorified Vassiliev theory, namely we categorify the notions of the chord diagram, 1 and 4-term relations and give the combinatorial definition of the Floer-type theory (embedded TFT) of finite type. We prove the analogue of Birman-Lin theorem for Khovanov homology.

Please contact alanw@math.berkeley.edu to arrange parking.

There will be a dinner at 6pm

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