1093-55-231   **Christopher L. Rogers*** (`crogers@uni-math.gwdg.de`), Mathematisches Institut, Georg-August-Universität Göttingen, D-37073 Göttingen, Germany. *Geometric prequantization for homotopy Lie theory.*

I will describe a "homotopical analog" of a procedure developed by Kostant, Kirillov, and Souriau in which symplectic geometry is used to produce central extensions of Lie algebras and their representations. Analogously, our construction geometrically produces L_∞-extensions using higher-degree closed differential forms. Such a form canonically gives an L_∞-cocycle whose homotopy fiber acts as the L_∞ analog of the Poisson algebra. When the form represents an integral cohomology class, this L_∞-algebra is homotopy equivalent to a DGLA corresponding to the infinitesimal autoequivalences of a higher bundle gerbe, in analogy with the prequantization of the Poisson algebra as vector fields on a principal circle bundle. Applications of this procedure include constructing Heisenberg-like L_∞-algebras such as the "string Lie 2-algebra". This is joint work with Domenico Fiorenza and Urs Schreiber (arXiv:1304.6292). (Received August 15, 2013)