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A local normal form for Hamiltonian Poisson-Lie group actions

We present a local normal form for Hamiltonian actions of Poisson-Lie groups K on a symplectic manifold equipped with a K^*-valued moment map, where K^* is a dual Poisson-Lie group to K. Our proof uses the delinearization theorem of Alexeev, Meinrenken, and Woodward, which relates a classical Hamiltonian action of K with $\mathfrak{k}^*$-valued moment map to a Hamiltonian action with a K^*-valued moment map, via a deformation ("delinearization") of symplectic structures. We obtain our main result by proving a "delinearization commutes with symplectic reduction" theorem which is also of independent interest, and then putting this together with the local normal form theorem for classical Hamiltonian actions wtih $\mathfrak{k}^*$-valued moment maps. A key ingredient for our main result is the delinearization $\mathcal{D}(\omega_{can})$ of the canonical symplectic structure on T^*K. Time permitting, I will briefly describe some steps toward explicit computations of $\mathcal{D}(\omega_{can})$. This talk is based on joint work with an undergraduate, Mr. Aidan Patterson, and Jeremy Lane, for an NSERC summer USRA project.