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Steven Benzel* (sbenzel@berry.edu), Berry College, Department of Mathematics, PO Box 5014, Mt Berry, GA 30149-5014. *Explicit Symplectic Integration of Compact Lie Poisson Systems.*

Let \mathfrak{g} be the Lie algebra of a compact Lie group. We classify all polynomial functions $h : \mathfrak{g}^* \rightarrow \mathbb{R}$ such that the assignment $\xi \mapsto \exp(td_h(\xi)) \cdot \xi$ is a canonical transformation for all $t \in \mathbb{R}$ and $\xi \in \mathfrak{g}^*$. This provides an explicit symplectic integrator for all polynomial hamiltonians for compact Lie Poisson systems. (Received September 15, 2008)