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Dmitry V Zenkov* (dvzenkov@ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695, and **Melvin Leok** and **Anthony M Bloch**. *Hamel's Formalism and a Structure-Preserving Integrator for a Spherical Pendulum*.

Hamel's formalism is a representation of Lagrangian mechanics in which the velocity components are unrelated to configuration coordinates. This formalism is utilized for constructing a global energy and momentum preserving variational integrator for spherical pendulum. (Received January 28, 2014)