Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Ion Transport in Amorphous Polymer Electrolytes KATHERINE P. BARTEAU, NATHANIEL A. LYND, GLENN H. FREDRICKSON, CRAIG J. HAWKER, EDWARD J. KRAMER, University of California, Santa Barbara —
Successful development of lithium polymer batteries has been limited by low ionic conductivities in the polymer electrolyte, especially at low temperatures. In order to generate strategies for improvement of ionic conductivity, we have developed highly-controlled syntheses for a number of well-defined poly(glycidyl ether)s, PGEs, to serve as low temperature polymer electrolytes. The properties of PGEs can be tuned through structure control and functionalization, making them model systems for understanding ion transport and elucidating structure-property relationships. In this work we will discuss the synthesis and characterization of a family of PGEs that exhibit systematic differences in glass transition temperature (Tg), viscosity, oxygen-content, dielectric constant, and ionic conductivity.

Katherine P. Barteau
University of California, Santa Barbara

Date submitted: 09 Nov 2012 Electronic form version 1.4