1046-28-1563   **Mark Burgin** (`mburgin@ucla.math.edu`), **Dongxin (Tony) Chen*** and **Alan Krinik** (`ackrinik@csupomona.edu`), Alan Krinik, Department of Mathematics and Statistics, 3801 W. Temple Avenue, Pomona, CA 91768. *Radon-Nikodym Theorem for Hyper-measures.*

To expand the domain of integrable functions, hyper-integration was introduced and studied. Hyper-integration is based upon an application of hyper-measures (Burgin, M., Hyper-measures in General Spaces, International J. of Pure and Applied Mathematics, v. 24, No. 3, 2005, pp. 299-323) which, in turn, depends upon the extension of real numbers to hyper-numbers, see, for example, Burgin, M., Theory of Hyper-numbers and Extra-functions, Functional Spaces and Differentiation, Discrete Dynamics in Nature and Science, Vol. 7, (3), 2002, pp. 201-212.

In this talk, we extend the classical Radon-Nikodym Theorem to the hyper-measure setting. The derivation, whenever possible, parallels the analysis of Anton R. Schep's article found in the American Mathematical Monthly, Vol. 110, No. 6,June-July 2003, pp. 536-538. Consequences of this generalization are discussed as time allows. (Received September 16, 2008)