1110-81-312 **Blake Temple*** (temple@math.ucdavis.edu), Department of Mathematics, University of California, One Shields Drive, Davis, CA 95616-8633, and **J Smoller** and **Z Vogler**. *Applied Mathematics vs Dark Energy.*

The 1999 observations of redshift v luminosity for supernovae in nearby galaxies won the Nobel Prize because it demonstrated that the universe is expanding faster than the Standard Model of Cosmology (SM) allows. The only way to preserve the Cosmological Principle, that on the largest length scale the universe is a Friedmann space-time which holds no special place, is to add the Cosmological Constant to Einstein's equations as a source term. Its interpretation is Dark Energy. A best fit among Friedmann space-times with Dark Energy leads to the conclusion that the universe is a critical Friedmann space-time, with 70% Dark Energy. In this talk I present an alternative explanation based on the discovery of a new asymptotic ansatz for perturbations of SM which create an instability. The instability is triggered by a one parameter family of self-similar perturbations of SM from the Radiation epoch, and creates a large, central region of uniform under-density which expands faster than the SM, and induces precisely the same range of corrections to redshift vs luminosity as are produced by the theory of Dark Energy. The result is a testable mathematical explanation for the anomalous acceleration of the galaxies wholly within Einstein's original theory, without the need for Dark Energy. (Received February 23, 2015)