Abstract Submitted for the CAL09 Meeting of The American Physical Society

**Understanding Dark Energy** HOWARD GREYBER — By careful analysis of the data from the WMAP satellite, scientists were surprised to determine that about 70% of the matter in our universe is in some unknown form, and labeled it Dark Energy. Earlier, in 1998, two separate international groups of astronomers studying Ia supernovae were even more surprised to be forced to conclude that an amazing smooth transition occurred, from the expected slowing down of the expansion of our universe (due to normal positive gravitation) to an accelerating expansion of the universe that began at at a big bang age of the universe of about nine billion years. In 1918 Albert Einstein stated that his Lambda term in his theory of general relativity was ees, "the energy of empty space," and represented a negative pressure and thus a negative gravity force. However my 2004 "Strong" Magnetic Field model (SMF) for the origin of magnetic fields at Combination Time (Astroph0509223 and 0509222) in our big bang universe produces a unique topology for Superclusters, having almost all the mass, visible and invisible, i.e. from clusters of galaxies down to particles with mass, on the surface of an ellipsoid surrounding a growing very high vacuum. If I hypothesize, with Einstein, that there exists a constant ees force per unit volume, then, gradually, as the universe expands from Combination Time, two effects occur (a) the volume of the central high vacuum region increases, and (b) the density of positive gravity particles in the central region of each Supercluster in our universe decreases dramatically. Thus eventually Einstein's general relativity theory's repulsive gravity of the central very high vacuum region becomes larger than the positive gravitational attraction of all the clusters of galaxies, galaxies, quasars, stars and plasma on the Supercluster shell, and the observed accelerating expansion of our universe occurs. This assumes that our universe is made up mostly of such Superclusters. It is conceivable that the high vacuum region between Superclusters also plays a role in adding extra repulsive gravity force. Note that cosmologist Stephen Hawking comments on his website that "The Abstract APS reason to rule out negative pressure. This is just tension."

Date submitted: 02 Nov 2009

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