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Observations of High Energy Cosmic Ray Electrons by the ATIC Balloon Experiment[1] T. GREGORY GUZIK, Louisiana State University, ATIC COLLABORATION — Recently the Advanced Thin Ionization Calorimeter (ATIC) balloon experiment reported observations of high energy cosmic ray electrons over the energy range 300 to 800 GeV, indicating a feature or "bump" in the otherwise smoothly decreasing energy spectrum. The severe energy losses that occur as these high energy particles traverse the galaxy render the cosmic ray electron spectrum sensitive to local (a few kiloparsecs) sources and, hence, very interesting. The ATIC results are the first time that such a cosmic ray spectrum anomaly has been observed at high energy. Potential sources of this electron excess include pulsars, micro-quasars, supernovae remnants as well as the annihilation of exotic dark matter candidate particles. ATIC has had three successful high altitude flights over the continent of Antarctica 2000-2001, 2002-2003 and 2007-2008. Only results from the first two flights have been reported so far. During this talk we will discuss the ATIC experiment, the electron observations (including preliminary results from the most recent ATIC flight), examine the merits of the various source models and compare the ATIC observations with other recent measurements.

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