A SECONDARY COULOMB MACHINE ACTIVATING CORE-COLLAPSE SUPERNOVA DISPLAYS

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We present an uncommon description of an energy transfer process in core-collapse supernovas; namely, a gravitational machine that increases Coulomb energy within nuclei via silicon burning. Later, excess of that Coulomb energy is returned by weak nuclear decays (EC and beta+). Those decays energize several observable quantities: (1) gamma-ray lines, (2) X-ray luminosity, (3) optical light curves, (4) free chemical energy. The delay of the return energy transfer is essential for visibility of these activations. These secondary displays have rich literatures; but expressing them as observables of a supernova machine, whose action can be summarized as gravitational compression-->Coulomb nuclear energy increase-->electroweak decays-->supernova displays, is novel.