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Reviving Nuclear Fusion Reaction Cycles in Solido

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We present a new revision of nuclear fusion reaction cycles whereby a solid room temperature lithium-6 deuteride (^{6}LiD) is burnt with neutrons beams. New calculations of the time evolution of a network of differential equations for the abundances of various nuclear species are presented. Data on nuclear cross-sections and non-thermal reaction rates are used to forecast the full time evolution of the most relevant thermonuclear reactions. To cycles are considered: the Jetter n+^{6}Li and Post cycles p+^{6}Li. According to our calculations there are great expectations for energy extraction in devices not based on plasma confinement, but rather on controlled nuclear burning into final products (mainly alpha particles).

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