

Autocatalytic Fusion-Fission Burn in the Focus of Two Magnetically Insulated Transmission Lines

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A configuration made up of two nested magnetically insulated transmission lines, the inner one carrying a high voltage lower current – and the outer one a high current lower voltage – pulse, was in a previous communication proposed for the ignition of a magnetic field assisted thermonuclear detonation wave. Unlike the fast ignition concept, it does not require the compression of the DT fusion fuel to densities in excess of the solid state. Here I show that with the same configuration, but by surrounding the DT fusion fuel with a blanket of solid U238, Th232 or B10, the ignition of a thermonuclear detonation wave is possible with densities of the DT fuel less than solid state densities, because the DT fusion neutrons can make a sufficient number of fission reactions, greatly increasing the pressure in the blanket, compressing the DT to high densities, launching a magnetic field assisted thermonuclear detonation wave. This autocatalytic fusion-fission burn has the further advantage that it can burn natural uranium, thorium and even boron.

Key words: Fusion-Fission Burn; Fast Ignition.