

Alternative to Direct Proton-Proton Fusion in Deuterium Formation

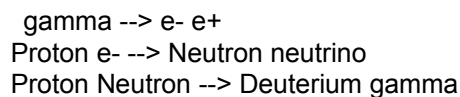
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A primary reaction stated to occur in stars is,



From this simple formula it would appear, and it is generally believed, that proton collision is integral to the reaction.

Below is an alternative to direct proton collision.



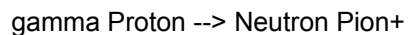
Addition of these three reactions results in the primary reaction.

The first of these reactions is assumed to occur in such proximity to a proton that the e^- is readily captured.

Further, while the 2.2 MeV energy of the gamma produced in the proton neutron fusion may not be sufficient to convert the proton to the neutron via the electron, other solar processes are capable of produced gammas of sufficient energy.

The general process of neutron formation as described above may occur with other nuclei. For example Helium-3 conversion to Tritium.

Of relevance the following reaction is commonly observed at gamma energies of 250-1000 MeV.



Of further relevance is the observation that solar flares have been reported to radiate at 2.2 MeV (Rank, et al).

This new plausible reaction mechanism may have consequences for controlled nuclear fusion.

Rank, et al "Extended gamma-ray emission of the solar flares in June 1991" Astronomy and Astrophysics 378(3):1046 Nov 2001

Also see the following relevant paper: http://gsjournal.net/research_papers-quantum_Theory/Particle/physics/Download/3676 . Saba, J Gen Sci J April 30, 2002