

Dynamics Of Fusion And Energy Production

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A microscopic model is proposed to study the possibility of gaining energy from nuclear fusion reactions. Two scenarios are studied in detail. In the first one, relevant to Tokamak like experiments, a plasma in equilibrium is studied at different densities and temperatures and for different fuels. In a second highly non equilibrium case, the plasma is formed at high densities and excitation energies, i.e. as in laser driven experiments. Different mixtures of D, T and ${}^6\text{Li}$ are proposed. We show that while the tokamak like case could lead to an energy gain, in the second case the energy given to the system might be larger than the output energy even for a D+T target.