

DENSE PLASMAS NEAR THE MOTT TRANSITION

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An important feature of the physics of dense plasmas is pressure ionization, in particular the transition from a dielectric to a metal-like conducting state. Different models have been elaborated to describe this transition such as the model of the partially ionized plasma, where a Mott transition due to the screening of the interaction occurs, or the Anderson-Hubbard model, where the occurrence of localized states is caused by disorder and correlation. Furthermore, a semi-empirical, successful approach is given by the confined atom model or averaged atom model. Based on a quantum statistical approach, the relations between the different approaches are shown. Experimental results are considered, and different microscopic processes such as hopping, occurring near the Mott transition, are discussed.