

## Computer simulation of dust dynamics for various materials of the edge fusion plasma

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The influences of dust formation from candidate materials and their lifetime are the most important characteristics of the dust dynamics of the edge fusion plasma [1-4]. Descriptions of the evolution of dust formation from candidate materials and their lifetime can play a significant role in the formation of edge dusty plasma. Therefore these results can be useful for estimating the penetration length of dust particles made from different materials moving in fusion devices.

In this work we consider the dynamics and lifetime of an individual dust particle formed on the wall surface of fusion reactor. To describe the dynamics of the dust particle the equations of motion, the equations of mass and energy balance, and the equations for charging the dust particle are solved.

Calculations are made for dust particles consisting of different materials of Be, Ni, Mo and W, which depend on the differences in material properties and thermochemical properties. Dust particle charge and energy fluxes have been obtained depending on the dust temperature. And also the temperature and radius of the dust particle are obtained, as a function of time. On the basis of these calculations, estimates of the dust lifetime have been obtained.

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