

Dust - a new challenge for fusion research?

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Small particles with dimensions in the range from a few nm up to a few 1/10 mm (dust) are found in many fusion devices. Depending on the production mechanism and on the composition, dust may incorporate significant amounts of hydrogen isotopes. In future fusion devices this will give rise to a Tritium inventory, which is a potential safety hazard. Reducing the dust bound Tritium inventory is thus a major issue. The precise knowledge of the dust production mechanisms, the quantification of its amount, the localization of dust within the device and the knowledge of the fate of dust particles are required for the development of adequate measures. By bringing together knowledge from the fields of low temperature plasma physics, dusty plasma research and of fusion plasma physics I will attempt to address some critical aspects of dust in fusion devices. I will discuss some important mechanisms of dust formation, present a characterisation of the particles and of their properties and behaviour.