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Cosmic dust and high energy ions. What? Why? How?

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Dust is one of the fundamental players in the physical and chemical processes taking place in astrophysical and (exo)planetary environments. The composition, structure, morphology, surface properties and optical properties of cosmic dust can dramatically change on its way from nm-sized particles in the interstellar medium to mm-sized pebbles –building blocks of planets in protoplanetary disks. These changes may influence and, in some cases, define the efficiency of physico-chemical processes involving dust.

In my talk, I will provide a brief introduction to cosmic dust and its interaction with high energy ions and will discuss experiments required to study influence of heavy ions on the optical, morphological and chemical properties of laboratory analogues of cosmic dust. Results of such a study will provide an important piece of puzzle of the evolution of cosmic dust and may have crucial industrial applications.

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