

Colloquium

SFB 956

Conditions and Impact of Star Formation

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Monday 3:00 pm

Physikalische Institute Köln

Lecture Hall III

Zülpicher Straße 77 | 50937 Köln

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Simulating Cosmic Ray-Driven Processes in Astrochemical Models: How and Why

Material in the ISM is subjected to bombardment by several types of ionizing radiation including cosmic rays, stellar winds, x-rays, and gamma-rays from radionuclide decay. It is known that such radiation can have a significant physicochemical impact on interstellar environments, and a large body of experimental work has shown that the interaction between such energetic particles and low-temperatures ices can result in the formation of complex - even prebiotic - molecules. Even so, modeling the chemical effects of cosmic ray collisions with interstellar dust grain ice mantles has proven challenging due to the complexity and variety of the underlying physical processes. In this talk, we review recent work by us on the methods of incorporating such processes into astrochemical models, as well as their effects on cold core simulations.

