RUHR-UNIVERSITÄT BOCHUM
FAKULTÄT FÜR PHYSIK UND ASTRONOMIE

RUB

PHYSIKALISCHES KOLLOQUIUM

Wintersemester 2018/19

Montag, 21.01.2019, 12 Uhr c.t. **HZO 20**

Molecular cloud formation and dispersal by stellar feedback

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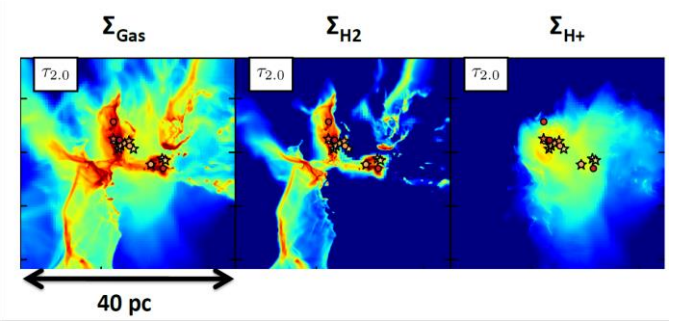

Star formation takes place in the densest and coldest parts of the interstellar medium (ISM), in dark molecular clouds. These are swept up by multiple supernova explosions on scales of several hundred parsec. While condensing out of the warm ISM, the clouds are continuously fed with fresh gas. Thus, the turbulent substructure and magnetic field properties are imprinted during cloud formation. The formation of dense clouds from the multi-phase ISM, the onset of star formation, and the evolution of the molecular clouds under the impact of stellar feedback from newly born massive stars is studied in high-resolution simulations within the SILCC project. I will present some of the latest results on the evolution of the clouds after the onset of star formation, which is governed by stellar feedback. For example, we find that the detailed cloud substructure determines the clouds' vulnerability to stellar feedback processes, in particular to ionizing radiation. Moreover, the ionization state of the gas can be highly variable on scales of tens of parsec due to small-scale turbulent motions within the star-forming clouds, which shield and release the ionizing radiation. This leads to a flickering of the young HII regions. I will briefly give an overview of how we can use these results to reconcile simulations and observations using molecular lines and dust continuum emission.

Einführung: Prof. R.-J. Dettmar

Die Fakultät lädt alle Interessierten herzlich ein.