

Colloquium

SFB 956

Conditions and Impact of Star Formation

18 November 2019

Monday 3:00 pm

Physikalische Institute Köln

Lecture Hall III

Zülpicher Straße 77 | 50937 Köln

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The Role of Ecology in Star and Planet Formation

Understanding how feedback regulates star and planet formation is one of the outstanding unsolved problems in astrophysics. Stellar feedback affects all astrophysical scales: it shapes the interstellar medium and mass function of galaxies, determines the fragmentation and star formation efficiency of molecular clouds, and plays a central role in the geochemical evolution of terrestrial planets. High-mass stars shape the local star-forming environment - the ecology - via radiation pressure, stellar winds, photoionization, and supernovae. Photoionization is the least explored of these; however, recent numerical work suggests that it dominates the destruction of molecular clouds and planet-forming disks around stars born in clusters. These predictions depend critically on the dynamics of newborn stars and feedback-altered gas, but these quantities are poorly unconstrained. I will talk about on-going surveys using ALMA, MUSE/VLT, and M2FS/Magellan to measure gas and stellar kinematics in order to test the role of environment in shaping the outcome of star and planet formation.

