

Physikalisches Kolloquium

Thursday, 13.06.2019, 16:15, HS 100

Reception with coffee & cookies 15:45

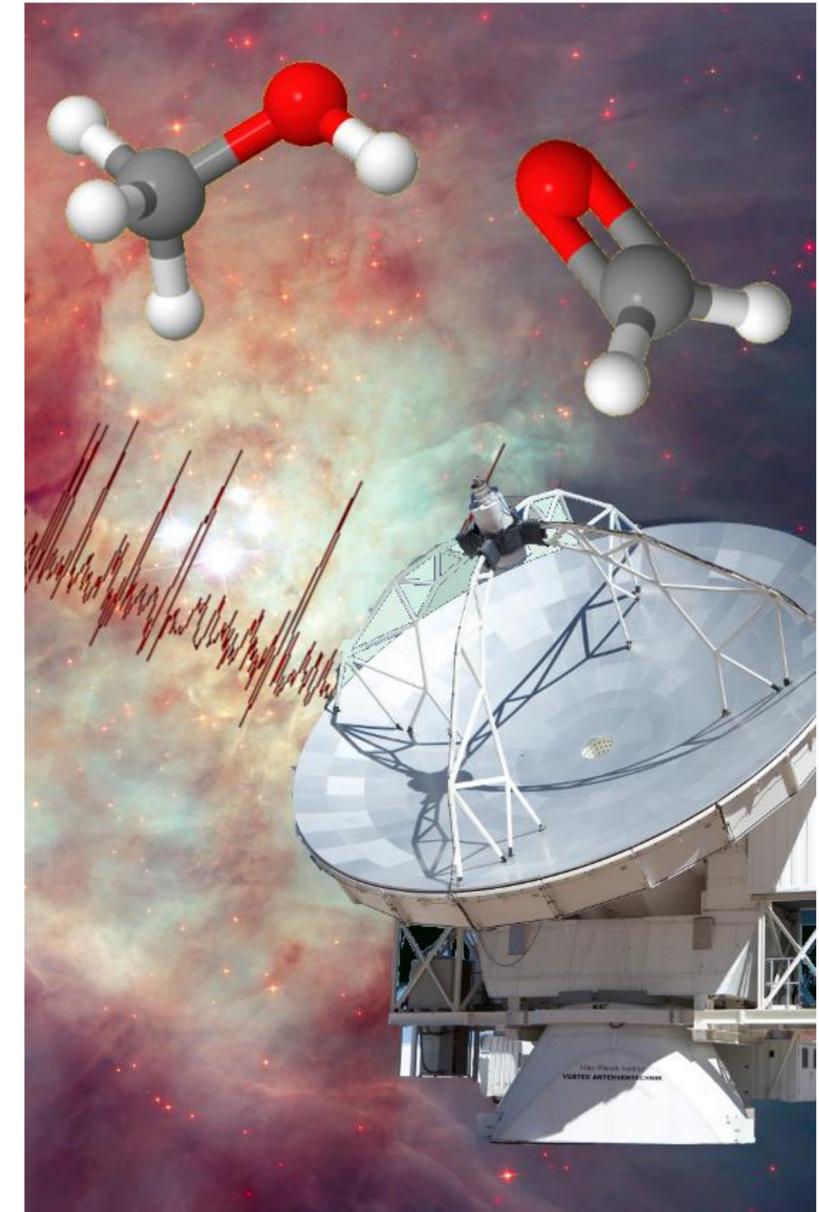
(For university staff: please bring your own cup for sustainability reasons)

Dr. Guido W. Fuchs, Universität Kassel:

Introductory Talk: Molecules in Space – An Observational and Laboratory Approach

Abstract

There has been a considerable change in the elementary composition and chemical diversity in our universe from the time of the big bang until today starting from simple hydrogen atoms to complex organic molecules. Today we can follow this process in several key phases of stellar evolution, such as the protoplanetary phase during star formation or in the late phases of stellar life. In the latter case, simple molecules form from atomic precursors in the outer atmosphere of giant stars and quickly react to larger molecular species and dust particles. These larger molecular species and dust grains are crucial for the chemistry in star forming regions where also complex organic molecules can form, e.g. via surface reactions. The cosmic molecular diversity is mainly evidenced by high-resolution spectroscopic observations at radio and infrared wavelengths, i.e. by probing the cold and warm interstellar and circumstellar matter content where these species form and transform due to the harsh cosmic conditions. The identification of molecular signals from space is highly dependent on laboratory studies. In this talk key aspects of the chemical evolution in space will be discussed, IR absorption experiments including new experimental setups (e.g. cavity ringdown method), and astronomical investigations, using IRTF/Hawaii, APEX12m/Chile and SOFIA, will be presented.



All of you interested in physics are cordially invited!