

Session of Focus Materialchemie – Wednesday, **22.05.2024** 16:00 – @ Seminarraum Lehar 01 (TU-Wien, Getreidemarkt 9, BC, OG. 01, room A46) – [join us](#) on ZOOM (ID: 983 0066 2349)

Modeling Interstellar Chemical Factories in the Laboratory: Insights into the Interstellar Formation of H₂ and Interstellar Complex Organic Molecules

György Tarczay

tarczay@chem.elte.hu

Institute of Chemistry, Eötvös University

The advancement of radio and infrared astronomy, till 2024, has facilitated the identification of over 300 distinct molecules in the gaseous phase of interstellar media. While the detection of molecules within the astrophysical ices of interstellar grains has been relatively limited, it is now widely recognized that many interstellar molecules are synthesized in the ice phase, or on the surface of these grains, before being released into the gas phase. One notable example of this phenomenon is the formation of H₂. Understanding the complexities of these chemical processes in space requires not only astronomical observations but also laboratory experiments capable of simulating interstellar conditions. This presentation will cover our experimental approaches and findings concerning the interstellar formation of H₂, as well as investigations into the synthesis and decomposition of interstellar complex organic molecules (iCOMs) induced by H-atoms and cosmic radiation in molecular clouds.