

PRODUCT-SPECIFIC REACTION KINETICS OF CN WITH PROPENE PROBED BY CHIRPED-PULSE FOURIER TRANSFORM MILLIMETER WAVE SPECTROSCOPY

DIVITA GUPTA^a, BRIAN M HAYS, MYRIAM DRISSI, THEO GUILLAUME, OMAR ABDELKADER KHEDAOU, ILSA ROSE COOKE, IAN R. SIMS, *CNRS, IPR (Institut de Physique de Rennes) - UMR 6251, Univ Rennes, F-35000 Rennes, France.*

Studying the different possible reactions and their dynamics under the low-temperature conditions of the interstellar medium and various planetary atmospheres is essential to understand the chemical evolution of various species detected in these environments. I will discuss the CPUF (Chirped Pulse in Uniform supersonic Flow) technique, which is a combination of the CRESU (Cinétique de Réaction en Ecoulement Supersonique Uniforme or Reaction Kinetics in Supersonic Uniform Flow) method to provide a low temperature environment and chirped-pulse Fourier transform millimeter spectroscopic detection. This technique has been further modified with an additional expansion chamber to enhance the detection of a wider variety of species and to overcome pressure effects in a CRESU flow. I will show our measurements for the reaction of CN radical with propene down at 35 K. I will discuss the impact of these experimental measurements, their application to astrochemical studies, and the future outlook for this technique at Rennes.

^aCurrent Affiliation: I. Physikalisches Institut, Universität zu Köln, Köln, Germany