

THE INTERACTION OF COSMIC RAYS WITH GALACTIC CENTER MOLECULAR CLOUDS

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Recent observations indicate that the cosmic ray ionization rate in the Galactic center is higher than elsewhere in the Galaxy by one to two orders of magnitude. These measurements are based on infrared H₃⁺ molecular spectroscopy studies. This interaction explains the ubiquitous warm molecular gas observed throughout the Galactic center as well as the unusual chemistry of molecular gas, as indicated by the high abundance of methanol, SiO and HCO⁺/HCN intensity ratios. I will present preliminary results of two molecular line surveys of the Galactic center that we have carried out using the CSO and ALMA. In particular, we discuss the intensity ratios of several molecular lines in the context of cosmic ray driven gas chemistry.