Chemistry at the surface of cold interstellar dust grains

Processes of interest
• Reaction networks
• Accretion (sticking)
• Diffusion (Quantum tunneling of O atoms)
• Thermal desorption
• Surface morphology influence
• Surface segregation
• Nuclear spin conversion (O-P flip)
• Isotopic effects …

Experiments designed to mimic interstellar clouds
• Amorphous surfaces (ices, silicates, PAH…), T = 10 K
• UHV - sub-monolayer regime
• Controlled atomic and molecular beams
• Detection : Mass spectroscopy, IR spectroscopy, Lasers (REMPI + TOF)

Possible thematic connections in MICHEM
• H₂ storage
• Atmospheric chemistry
• Surface morphology determination
• Surface oxygenation / reduction

Systems studied

MICHEM Project 15
PHD Grant: Starting October 15
Chemical origin of N₂ and CO differential depletion in prestellar cores:
observations and laboratory investigations
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