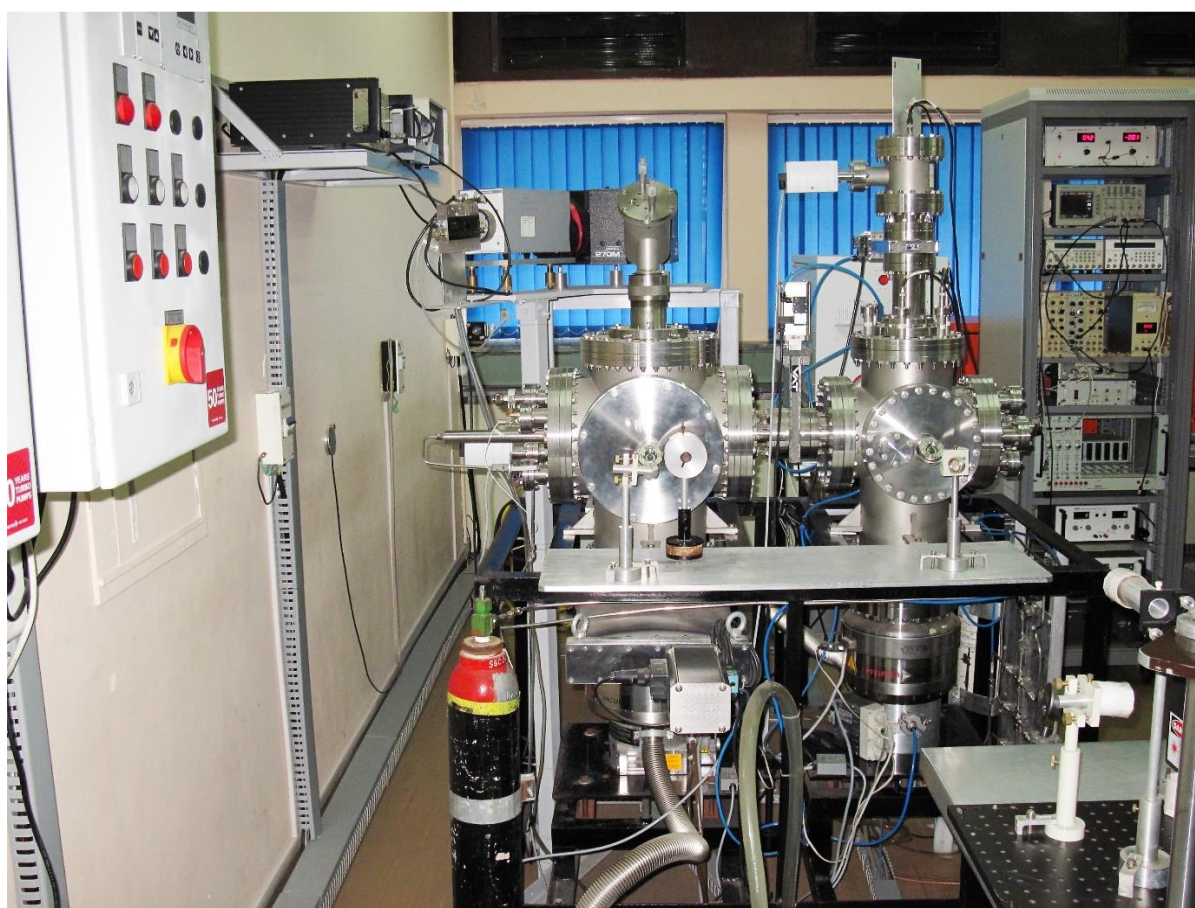


Supersonic Molecular Beam Setup

Indigenously developed laser ablation/reaction supersonic molecular beam setup for the generation of jet-cooled metal-bearing molecules and their investigations using laser spectroscopy & mass spectrometry.



The Supersonic Molecular Beam (SMB) is an indigenously developed experimental facility for generating the atoms, molecules and clusters of refractory nature in gas phase at non-equilibrium low temperature for simplifying their inherent complex spectra. It utilizes Smalley-type laser vaporization/reaction source in conjunction with free-jet expansion. We designed and developed PZT based pulsed gas pulse valve for this source. The beam of translationally (5K), rotationally (30 K), vibrationally (300 K) and electronically (700 K) cooled ephemeral species are probed with laser-induced fluorescence and resonance ionization mass spectrometry techniques for investigating their electronic and geometrical structures. The facility houses various fixed frequency and narrow band tuneable (220-850 nm) lasers and a home-built linear time-of-flight mass spectrometer.