

Holger Kreckel, Andrew A. Mills, Manori Perera, Brian M. Siller,  
Kyle N. Crabtree, Carrie A. Kauffman, Benjamin J. McCall

University of Illinois, Department of Physical Chemistry, Roger Adams Lab 170,  
600 S. Mathews Avenue, Urbana, IL 61801, email: hkreckel@illinois.edu

## SCRIBES: Sensitive, Cooled, Resolved Ion BEam Spectroscopy

Molecular ions play a pivotal role in the chemistry of the interstellar medium because of their high reactivity even at low temperatures. In order to identify molecular ions in interstellar space, reliable spectroscopic benchmark data are needed. Compared to neutral molecules, however, relatively few high resolution spectra of ions have been measured in the laboratory to date due to the difficulty of creating sufficiently high number densities. We are developing a Sensitive, Cooled, Resolved Ion BEam Spectroscopy (SCRIBES) instrument to address these issues. In SCRIBES we will make use of modern cavity-enhanced techniques to perform spectroscopy on rotationally cold molecular ion beams. In this presentation we will give an overview of the instrument and the development of a continuous supersonic expansion discharge source. Furthermore we will describe the spectroscopic approach and the infrared laser system that is going to be used with SCRIBES.

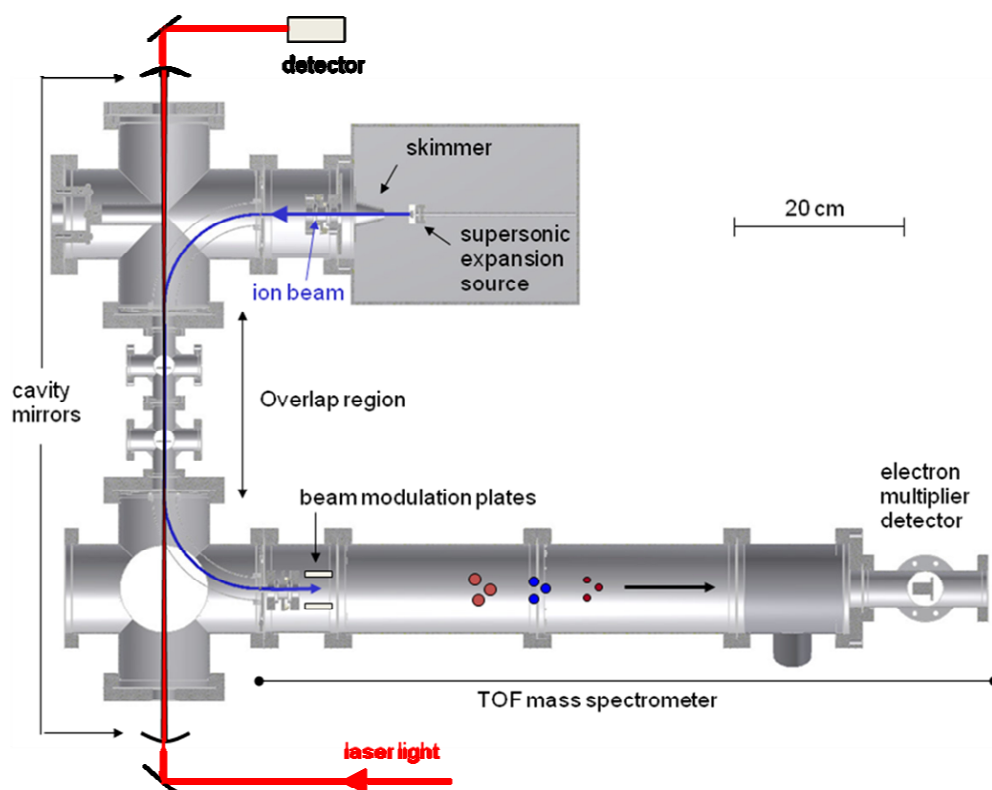


Figure 1: Overview of the SCRIBES apparatus