THE DEVELOPMENT AND DIAGNOSTIC STUDY OF AN ENERGY RESOLVED, TRANSLATIONALLY COLD MOLECULAR BEAM

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We continue studying the translationally-cold beam experiment we presented last year: translationally cold (5-10K) molecules emerge from a collisional cooling cell, are focused by a quadrupole state selector and are detected by a microwave cavity and a mass spectrometer. In order to analyze the phenomena inside the collisional cooling source - a part of the experiment inaccessible by direct measurements - we used a computer simulation. The results explained some of the instabilities we encountered in earlier experiments, and pointed to new working regimes of the source. With these results we are able to get a much larger and more stable signal. However the measurements involving ammonia show unanticipated results. These and the overall parameters of the system will be described.