

During my master thesis I became familiar with ion imaging and velocity map imaging (VMI) techniques in experiments with molecular beam. My major contribution was writing a computer program for data acquisition and pre-analysis. The program features initial filtering of the data, improving significantly signal to noise ratio. Non-trivial effort was required to make the program compatible with three different CCD cameras implemented on different experiments in the laboratory. I have also simulated ion trajectories in VMI and wrote a program code to imulate VMI image distortions due to imperfections in apparatus geometry. These programs will be useful in aligning and tuning the apparatus. Finally, I wrote a program for data manipulation and conversion to formats compatible with various data analysis programs available in the laboratory. All the above programs I have tested by measurements of 243 nm photodissociation of HBr molecules.