FIRST EXPERIMENTS AT FELICE, THE FREE-ELECTRON LASER FOR INTRA-CAVITY EXPERIMENTS

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Action spectroscopy is now a well-established technique for measuring the Infrared (IR) spectra of (bio)molecules/ions, clusters and complexes in the gas phase. To greatly enhance the capabilities for this type of research, FELICE, the Free Electron Laser for Intra-Cavity Experiments has been constructed at the FELIX user facility and phase I was recently commissioned. Here we present the results of first experiments that clearly demonstrate the great potential of this unique piece of equipment. Exemplary is the efficient IR photofragmentation of neutral C_{60} molecules at 19.2 μm, which has been observed with FELICE, but not with the previously existing FELIX lasers.