FEMTO-FANTASIO: A VERSATILE EXPERIMENTAL SET-UP TO INVESTIGATE MOLECULAR COMPLEXES

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Several improvements have been made on the apparatus developed in Brussels for the study of jet-cooled molecules, named FANTASIO [abc], for "Fourier trANsform, Tunable, diode and quadrupole mAss spectrometers interfaced to a Supersonic expansIOn". The upgraded setup, called Femto-FANTASIO, is presented.
These improvements include: a doubling of the pumping efficiency, by adding another turbomolecular pump Leybold MAG-W3200 CT; an increase in sensitivity in the 1.5 μm range thanks to a new CRDS system, consisting in new cavity mirrors, leading to a ring down time of 125 μs and a new detector, decreasing the noise level; a new injection system to probe samples liquid at STP conditions; a temperature controlled nozzle/slit; and as an alternative probe technique, an absorption source, tunable from 3000 to 9000 cm^{-1}, coupling an optical parametric oscillator (OPO), pumped by a Ti:Sa femtosecond laser, to a high resolution continuous scan Fourier transform interferometer.
Femto FANTASIO will be used to investigate molecular complexes. First results and achievements of this new setup are presented.

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