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Experimental techniques to measure fragmentation Branching Ratios of isolated and excited molecules.

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We present on this poster the experimental techniques that we used to measure fragmentation BR of small hydrocarbon $C_nH_m^{Q+}$ created by dissociative charge transfer (Q=0), excitation (Q=1) or ionization (Q=2,10) taking place in high velocity collisions of $C_nH_m^+$ with atoms.

Inverse kinematics scheme (the projectile is the molecule) is applied thanks to the Orsay IPN Tandem facility. With this machine, the velocities are significantly higher than those reached using the Rings [1]. They allow to perform Pulse Shape Analysis (PSA) on the current signal from silicon detectors. Indeed the shape of current signal is related to the fragmentation pattern [2]. Exception arises from Hydrogen fragmentation patterns because the Hydrogen low energy (all fragments have the same velocity) makes the shape variation to be inside the detector noise. The well known grid method, as in DR experiments, is then coupled to the PSA technique to fully resolve the fragmentation. Some results on C_nH_m ($n \leq 5$, $m \leq 2$) will be presented to illustrate the method.

[1] A.I.Florescu-Mitchell et al Physics Reports 430 (2006) 277-374
[2] M.Chabot et al Nuclear Instrum. Meth. B 197 (2002) 155-164