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Improvements of modulated beam mass spectrometry: application to pulsed plasma FRANÇOIS BOULARD, GILLES CUNGE, THIERRY CHEVOLLEAU, Laboratoire des Technologies de la Microélectronique, CNRS, NADER SADEGHI, LSP, Université Joseph Fourier and CNRS, OLIVIER JOUBERT, Laboratoire des Technologies de la Microélectronique, CNRS — Mass Spectrometry (MS) measurements accuracy is of major interest for fundamental plasma studies as well as process development. In this sense, complex hand made system have been developed to address the beam to background issue [1-2]. In addition, radical kinetics was investigated by the analysis of the temporal decay of radicals' density in time resolved pulsed discharges [3]. In this work, we introduce a novel method to subtract the MS background signal, based on a tuning fork resonant chopper. With examples in Ar, O_2 and Cl_2 inductively coupled plasmas, we show a strong impact of species reactivity and beam component intensity on the background level estimation. Thanks to improvements in the counting system, we present time resolved measurements of the beam components in pulsed discharges.

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[3] J. Perrin, *et. al.*, J. Vac. Sci. Technol. A 16 (1), (1998) 278.

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