

Abstract for an Invited Paper
for the GEC11 Meeting of
The American Physical Society

Diagnostics of reactive pulsed plasmas by UV and VUV absorption spectroscopy and by modulated beam Mass spectrometry¹
GILLES CUNGE, CNRS/LTM

Pulsed plasmas are promising for etching applications in the microelectronic industry. However, many new phenomena are involved when a high density discharge is pulsed. To better understand these processes it is necessary to probe the radicals' kinetics with a microsecond resolution. We have developed several diagnostics to reach this goal including broad band absorption spectroscopy with UV LEDs to detect small polyatomic radicals and with a deuterium VUV source to detect larger closed shell molecules and the modulated mass spectrometry to monitor atomic species. We will discuss the impact of the plasma pulsing frequency and duty cycle on the radical densities in Cl₂ based plasmas, and the consequences on plasma processes.

¹Work done in collaboration with Paul Bodart, Melisa Brihoum, Maxime Darnon, Erwin Pargon, Olivier Joubert, and Nader Sadeghi, CNRS/LTM.