

SEMINARIO DI DIPARTIMENTO
(proposto dal Prof. Guido Gigli)

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**Biofuels Combustion and Atmospheric Chemistry: Products and
Intermediates Identification via Synchrotron Photoionization Mass
Spectrometry**

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Recently, much attention has been devoted to developing new fuels, specifically biofuels, with the intent of finding alternative solutions to petroleum-based combustibles. The main motivations are to seek carbon-neutral fuels that can be employed in current and, in a possibly near future, advanced new generation engines.

As a part of a continuing effort to characterize noteworthy combustion and atmospheric reaction intermediates and products, recent results are presented from experiments carried out at the Advanced Light Source at the Chemical Dynamics Beamline of Lawrence Berkeley National Laboratory using multiplexed photoionization mass spectrometry [1,2]. Species are identified by their mass-to-charge ratios, time profile, and PIE (photoionization efficiency) curves. Examples are discussed ranging from new intermediates characterization to reaction mechanisms elucidation, and biofuels oxidation pathways identification.

References

- [1] G. Meloni, P. Zou, S. J. Klippenstein, M. Ahmed, S. R. Leone, C. A. Taatjes, D. L. Osborn, *J. Am. Chem. Soc.* **128** (2006) 13559.
- [2] D. L. Osborn, P. Zou, H. Johnsen, C. C. Hayden, C. A. Taatjes, V. D. Knyazev, S. W. North, D. S. Peterka, M. Ahmed, S. R. Leone, *Rev. Sci. Instr.* **79** (2008) 104103.