

Centre National de la Recherche Scientifique (CNRS-LCSR), Orleans, France (CNRS)

Expertise and Experience

LCSR is a laboratory of CNRS with an overall staff of about 80 people including 15 permanent scientists and 10 academics. The main research areas are on combustion chemistry and physics and atmospheric chemistry. The atmospheric reactivity division is composed of 15 people including 5 permanent scientists. The research activities of this division mainly deal with laboratory studies of atmospheric gas-phase reactions and more recently studies of some heterogeneous chemistry processes. The gas-phase group has been working for more than 25 years on kinetics of atmospheric reactions relevant for stratospheric and tropospheric chemistry at different scales. The studies are performed using the most advanced experimental techniques, including low pressure discharge flow reactors coupled with mass spectrometric analysis, pulsed laser photolysis coupled with laser-induced fluorescence (LIF) and resonance fluorescence analysis, high pressure turbulent flow reactor coupled with chemical ionisation mass spectrometric analysis is currently setting up. Photoreactors (Teflon bags of 200L, chamber of 8 m³) coupled with GC-MS and FTIR are also used for mechanistic studies on VOC oxidation. The group also actively participates to experimental campaigns using the European Photoreactor (EUPHORE) in Valencia as well as field campaigns (i.e. ESCOMPTE) to measure peroxy radicals using the chemical amplifier technique. In the last 10 years, the group has published more than 70 papers in peer-reviewed journals. These last 10 years, the group has been continuously involved in EC projects, in the EC/EUROTRAC projects LACTOZ and currently CMD, in national projects of the French atmospheric programmes, and in an industrial projects to investigate the fate of chemicals using mainly simulation chambers.

Professional Experience

Dr. Georges Le Bras (PI) is the head of the Atmospheric Kinetics group at CNRS-LCSR. He has been working on atmospheric kinetics for 30 years. He is co-author of 140 publications in peer review journals. He has been one of the coordinators of the EC/EUROTRAC LACTOZ project dealing with laboratory studies of tropospheric ozone. His group has been recently involved in several EC projects. He was the coordinator of one of them (DOMAC). Recently, his group was involved in two projects (EL-CID and NITROCAT) and currently in three projects (MOST, IALSI, UTOPIHAN) of FP5 (Global change). He has been member of scientific committees (e.g. EC science panel of Atmospheric Chemistry, SSC of EUROTRAC2, many French programmes of atmospheric chemistry (he has been the chairman of the French programme of atmospheric chemistry at CNRS). He is currently member of the following scientific committees: National programme of Atmospheric Chemistry (PNCA) at CNRS, Air quality programme (PRIMEQUAL), EUPHORE consortium, and others.

Dr. Abdelwahid Mellouki, co-worker of Dr G. Le Bras, will be fully involved in the project. He has been working at CNRS as researcher since 1991 in the atmospheric kinetics group, after he spent 2 years as post-doctoral fellow at the Aeronomy Laboratory of NOAA (Boulder-Colorado). He has been studying atmospheric chemical reactions for more than 16 years and his work mainly deals with VOC oxidation. He has also contributed to EUPHORE campaigns within the different EC projects. He has been acting as PI within two EC projects (EUROSOLV and HALOBUD) and is currently a PI within the EC project MOST. He has been involved in a number of national French projects on atmospheric chemistry (CNRS and Ministry of Environment); he is currently coordinating two of them. He is co-author of around 55 publications in peer review journals.

RECENT/CURRENT EC PROJECTS

EL CID	Evaluation of the climatic impact of dimethyl sulphide (ENVK2-CT-1999-00033)
IALSI	Processes relevant to global change – Improvements and access to a large simulation chamber (EVR1-CT-2001-40013)
MOST	Multiphase chemistry of oxygenated species in the troposphere (ENK2-CT-2001-00114)
UTOPIHAN-ACT	Upper tropospheric ozone: Processes involving HO _x and NO _x . The impact of aviation and convectively transported pollutants in the tropopause region (EVK2-CT-2001-00099)

RECENT PUBLICATIONS

- Lun, X., Magneron, I., Bossoutrot, V., Mellouki, A. (2003) The atmospheric oxidation of methyl isopropyl ketone in the gas phase, *Phys. Chem. Chem. Phys.* (submitted).
- Magneron, I., Bossoutrot, V., Mellouki, A., Laverdet, G., Le Bras, G. (2003) The OH-initiated oxidation of hexylene glycol and diacetone alcohol, *Environ. Sc. Technol.* (submitted).
- Magneron, I., Thévenet, R., Mellouki, A., Le Bras, G., Moortgat, G.K., Wirtz, K. (2002) A study of the photolysis and OH-initiated oxidation of acrolein and *trans*-crotonaldehyde, *J. Phys. Chem. A* **106**, 2526-2537.
- Mellouki, A., Yujing, M. (2003) On the atmospheric degradation of Pyruvic acid in the Gas Phase, *J. Photochem. Photobio. A: Chem.* (in press).
- Thiault, G., Thévenet, R., Mellouki, A., Le Bras, G. (2002) OH- and O₃-initiated oxidation of ethyl vinyl ether, *Phys. Chem. Chem. Phys.* **4**, 613-619.
- Thiault, G., Mellouki, A., Le Bras, G. (2002) Gas-phase reactions of OH and Cl with aromatic aldehydes, *Phys. Chem. Chem. Phys.* **4**, 2194 - 2199.
- Vésine, E., Boussoutrot, V., Mellouki, A., Le Bras, G., Wenger, J., Sidebottom, H. (2000) Kinetics and mechanistic study of OH- and Cl-initiated oxidation of two unsaturated HFCs :C₄F₉CH=CH₂ and C₆F₁₃CH=CH₂, *J. Phys. Chem.* **104**, 8512-8520.