

University College Cork, Cork, Ireland (UCC)

Expertise and Experience

University College Cork was founded in 1845 and today has over 14,000 students and 1,700 staff. It is the largest Irish university outside the capital, Dublin. Undergraduate and postgraduate degrees are granted in all disciplines and there is a strong emphasis on research. Indeed, UCC is established as one of the top institutions in Ireland for innovative research in the sciences, humanities, engineering, medicine and business. This position has recently been strengthened by the award of 15 M€ from government funds for UCC to set up the country's first Environmental Research Institute (ERI). Students come to UCC from over 60 countries to pursue their studies in a stimulating academic environment and to be part of a vibrant community sharing a rich social and cultural experience.

The Centre for Research into Atmospheric Chemistry is part of the Chemistry Department of UCC and is also a core research area within the Environmental Research Institute. CRAC was set up in 1998 with university funds amounting to 1.3 M€. The Centre currently comprises 15 scientists including two with permanent academic positions; Professor John Sodeau and Dr. John Wenger. The Centre has two laboratories equipped with custom-built reactors for studying atmospheric processes and a wide range of spectroscopic and analytical equipment including GC, GC-MS, ICP-OES, FTIR spectroscopy and a particle counter and sizer. The Centre has been successful in obtaining funds from National and European sources and currently has 3 postdoctoral fellows and 10 postgraduate students working on a variety of projects. The main areas of research are (i) atmospheric degradation of volatile organic compounds, (ii) heterogeneous chemistry in the atmosphere and (iii) chemical composition of airborne particulate matter (PM₁₀ and PM_{2.5}).

Professional Experience

Dr. John Wenger was appointed as College Lecturer in the Chemistry Department at University College Cork in March 1999. He has over 6 years experience of research in atmospheric chemistry. His work has resulted in around 20 publications in internationally renowned journals and a similar number of articles in conference proceedings. Dr. Wenger is an established member of the Atmospheric Chemistry community in Europe and has been involved in a number of collaborative projects in the 4th and 5th Frameworks. He has been a regular user of the European Photoreactor (EUPHORE), a large outdoor simulation chamber for studies of atmospheric chemistry, located in Valencia, Spain since its opening in 1995. He was the coordinator for the EUPHORE components of several EU-funded projects and co-editor of the EUPHORE Annual Report for 1997. His current research interests are (i) the atmospheric degradation of volatile organic compounds (ii) Chemical composition of airborne particulate matter. The work is e.g. funded by the following national research projects:

- “Atmospheric Oxidation of Xylenes”, Enterprise Ireland, 01/10/00-30/09/03.
- “The Oxidation of Toluene, Xylene and Related Species”, Irish Higher Education Authority 01/10/00-30/09/03:
- “Atmospheric Chemistry of Oxygenated Biogenic Compounds, with University of Paris, Creteil, France, 01/10/02-30/09/03.
- “Nature and Origin of PM₁₀ and Smaller Particulate Matter in Urban Air”, with University College Galway, University of Birmingham, UK, 01/11/00-30/10/03
- “Reaction of Nitrate Radicals with Dimethylphenols under Atmospheric Conditions”, Irish EPA, 12/01-11/04

RECENT/CURRENT EC PROJECTS

- EXACT Effects of the oxidation of aromatic compounds in the troposphere (EVK-CT-1999-00053)
- IALSI Processes relevant to global change – Improvements and access to a large simulation chamber (EVR1-CT-2001-40013)

RECENT PUBLICATIONS

- Le Calvé, S. , Mellouki, A., Le Bras, G., Treacy, J., Wenger, J., Sidebottom, H. (2000) Kinetic studies of OH and O₃ reactions with allyl and isopropenyl acetate, *J. Atmos. Chem.* **37**, 161-172.
- Moriarty, J., Wenger, J., Sidebottom, H., Mellouki, A., Le Bras, G. (2003) Kinetic studies on the reactions of hydroxyl radicals with cyclic ethers and long chain diethers, *J. Phys. Chem.* **107**, 1499-1505.
- Porter, E., Wenger, J., Treacy, J., Sidebottom, H., Mellouki, A., Teton, S., LeBras, G. (1997) Kinetic studies on the reaction of hydroxyl radicals with diethers and hydroxy ethers, *J. Phys Chem. A* **101**, 5770-5775.
- Treacy, J., Curley, M., Wenger, J., Sidebottom, H. (1997) Determination of Arrhenius Parameters for the Reactions of Ozone with Cycloalkenes, *J. Chem. Soc. Faraday Trans.* **93**, 2877-2881.
- 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.
- Wenger, J., Collins, E., Porter, E., Treacy, J., Sidebottom, H. (1999) Mechanisms for the Cl atom initiated oxidation of dimethoxymethane and 1,2-dimethoxyethane in the presence of NO, *Chemosphere* **38**, 1197-1204.
- Wenger, J., Sidebottom, H., Le Calvé, S., Wirtz, K. (2003) Photolysis of chloral under atmospheric conditions, *J. Photochem.* (in press).