

# Andreas Metlen

Molenakkersstraat 51  
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Belgium

Date of birth: 22.03.1976  
Place of birth: Eupen (B)  
Nationality: Belgian



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## PROFILE

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Highly motivated and creative individual with passion for science, technology & philosophy.

## PROFESSIONAL EXPERIENCES

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**FeyeCon Carbon Dioxide Technologies BV**  
Project Leader

Weesp & Delft, NL  
May 2010 – May 2013

- Project leader in a variety of projects for joint ventures and outside customers
- Proposal writing (FP7, Nine Sigma, AgentschapNL)
- Specialist for ionic liquids related tasks & opportunities

**Queen's University Ionic Liquid Laboratories**  
Research Fellow

**(Queen's University Belfast)**

Belfast, UK  
June 2007 – March 2010

- Project leader for the identification and application of ionic liquids in separations for PETRONAS
- Contributed in setting up new laboratory facilities

**Center for Green Manufacturing**  
Post-doc

**(University of Alabama)**

Tuscaloosa, USA  
November 2006 – June 2007

- Contributed to several projects: API-project (formulation of liquid multifunctional drugs), one-pot multicomponent syntheses of ionic liquids (DuPont), cellulose-project (dissolution of hard to dissolve compounds; BASF), perchlorate project (demilitarization and reuse of ammonium perchlorate; US Government)
- Effective communication with and supervision of students in research projects

**RWTH Aachen and FAU Erlangen-Nuremberg**  
PhD and Master

Germany, D  
October 2001 – March 2006

- Developed new catalytic systems using ionic liquids as solvents and/or catalytically active species for projects sponsored by Novartis and Solvent Innovation
- Efficient collaborations with universities in Germany (University of Rostock) and France (University Blaise Pascal of Clermont-Ferrand)

## ANALYTICAL & TECHNICAL SKILLS

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- NMR, IR, Raman, TGA, DSC, MS, GC, GC-MS, UV-vis, PXRD, Cyclovoltammetry, Viscosimetry, Karl-Fischer-Titration, Squid-Magnetometer, work with acids and bases, work under inert atmosphere

## COMPUTER PROFICIENCY

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- Word, Excel, PowerPoint, ChemDraw, Isis Draw, Mercury, SciFinder, SigmaPlot, TopSpin

## EDUCATION

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- **PhD and Master in Technical Chemistry** October 2001 – March 2006  
*Institute for Chemical Reaction Engineering, FAU Erlangen-Nuremberg, & Institute for Technical and Macromolecular Chemistry, RWTH Aachen*

**Title:** Functionalizations of aromatic compounds in the presence of ionic liquids  
(In cooperation with Novartis, Switzerland, and Solvent Innovation, Germany)  
*Advisor: Prof. Peter Wasserscheid*

The project aimed at the synthesis of known and novel ionic liquids and characterization of their physico-chemical properties. A second part involved the kinetic investigation on their catalytic activity in aromatic substitutions. In addition, attempts to scale up manufacture of one reaction product were performed. Guidance of students during practical courses was also part of the PhD training.

- Study of Chemistry at the RWTH Aachen (D) October 1994 – March 2002
- High school: Royal Athenaeum St.-Vith (B) September 1991 – July 1994

## LANGUAGE PROFICIENCY

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- Mother tongue: German
- English and French (fluent in reading, speaking and writing)
- Dutch: intermediate level
- Learning Mandarin Chinese

## PERSONAL INTERESTS

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- Reading
- Swimming
- Travelling

## REFERENCES

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FeyeCon Carbon Dioxide Technologies  
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Prof. Kenneth R. Seddon

Chair of Inorganic Chemistry  
Director of QUILL

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Chemical Engineering  
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Prof. Robin D. Rogers

Robert Ramsay Chair of Chemistry  
Distinguished Research Professor

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## ACHIEVEMENTS

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### Granted project proposal

- 1) FP7 proposal (**CyclicCO2R**) as part of a consortium

### Talk given

- 1) A. Metlen, M. Rahman, N. Sun, M. L. Maxim, G. Moyna, P. Moyna, R. D. Rogers „Utilizing Ionic Liquids for Access to and Modification of Bio-renewable Polymers”, Eurocat VIII, Turku, Finland, August 26-31, 2007. (replacing Prof. Rogers)

### Publications

- 1) Metlen, A.; Mallick, B.; Murphy, R. W.; Mudring, A.-V., Rogers, R. D. “Phosphonium Chloromercurate Room Temperature Ionic Liquids of Variable Composition” *Inorg. Chem.* **2013**, *52*, 13997-14009.
- 2) B. Mallick, A. Metlen, M. Nieuwenhuyzen, R. D. Rogers, A.-V. Mudring “Mercuric Ionic Liquids: [C<sub>n</sub>mim][HgX<sub>3</sub>], Where n = 3, 4 and X = Cl, Br” *Inorg. Chem.* **2012**, *51*, 193-200.
- 3) N. Sun, X. Jiang, M. L. Maxim, A. Metlen, R. D. Rogers “Use of Polyoxometalate Catalysts in Ionic Liquids to Enhance the Dissolution and Delignification of Woody Biomass” *ChemSusChem* **2011**, *4*, 65-73.
- 4) E. Boros, M. J. Earle, M. A. Gilea, A. Metlen, A.-V. Mudring, F. Rieger, A. J. Robertson, K. R. Seddon, A. A. Tomaszowska, L. Trusov, J. S. Vyle “On the dissolution of non-metallic solid elements (sulfur, selenium, tellurium and phosphorus) in ionic liquids” *Chem. Comm.* **2010**, *46*, 716-718.
- 5) D. B. Cordes, M. Smiglak, C. C. Hines, N. J. Bridges, M. Dilip, G. Srinivasan, A. Metlen, R. D. Rogers “Ionic Liquid-Based Routes to Conversion or Reuse of Recycled Ammonium Perchlorate” *Chem. Eur. J.* **2009**, *15*, 48, 13441-13448.
- 6) M. Smiglak, A. Metlen, R. D. Rogers “The Second Evolution of Ionic Liquids - From Solvents and Separations to Advanced Materials: Energetic Examples from the Ionic Liquid Cookbook” *Acc. Chem. Res.* **2007**, *40*, 11, 1182-1192.
- 7) J. H. Poplin, R. P. Swatloski, J. D. Holbrey, S. K. Spear, A. Metlen, M. Grätzel, M. K. Nazeeruddin, R. D. Rogers “Sensor technologies based on a cellulose supported platform” *Chem. Commun.* **2007**, 2025-2027.
- 8) N. Brausch, A. Metlen, P. Wasserscheid “New, highly acidic ionic liquid systems and their application in the carbonylation of toluene” *Chem. Commun.* **2004**, 1552-1553.

### Patents

- 1) P. Wasserscheid, K. Kühlein, A. Metlen „Method for producing substituted organic compounds and use of catalysts for substitution reactions” PCT Int. Appl. (2003), WO 2003 106379
- 2) P. Wasserscheid, A. Metlen, N. Brausch „Mixtures of ionic liquids with lewis acids” PCT Int. Appl. (2005), WO 2005 014547

### Posters

- 1) M. Huszar, A. Varga, A. Metlen, A. Horvath, M. Idei, G. Keri, H. Rodriguez, R. D. Rogers, and T. Vantus “**Analytical and Biological Study of a New Hydroxyquinoline-based Library**” COIL 3, Cairns, Australia, May 31 - June 4 2009.
- 2) A. Metlen, R. D. Rogers “**Dithiocarbamate Salts and Ionic Liquids**” COIL 3, Cairns, Australia, May 31 - June 4 2009.
- 3) A. Metlen, R. D. Rogers “**Dithiocarbamate Salts and Ionic Liquids**” QUILL meeting 10th anniversary, Belfast, UK, March 30th – 31st 2009.
- 4) A. Metlen, C. Rijksen, W. L. Hough, M. Smiglak, H. Rodríguez, R. P. Swatloski, S. K. Spear, D. T. Daly, J. Pernak, J. E. Grisel, R. D. Carliss, M. D. Soutullo, J. H. Davis, *Jr.*, and R. D. Rogers „**Ionic Liquids as Active Pharmaceutical Ingredients Exemplified by Lidocaine Docusate**” COIL 2, Yokohama, Japan, August 5-10, 2007.
- 5) A. Metlen, P. Wasserscheid, K. Kühlein, M. Uerdingen „**Nucleophilic halogen-exchange reactions in ionic liquids**” Green Solvents for Synthesis, Bruchsal 2004.
- 6) A. Metlen, P. Wasserscheid, K. Kühlein, M. Uerdingen „**Nucleophilic fluorination in ionic liquids**” Jahrestagung deutscher Katalytiker, Weimar 2004.