

## CURRICULUM VITAE

Family name: Braekers

First names: Damien

Date of birth: 16/09/1978

Nationality: Belgium

Civil status: Married

Education: Ph. D. in Sciences

Institution (Date from - Date to)	Degree(s) or Diploma(s) obtained:
University of Liege (2002-2009)	PhD in Sciences (University of Liege)
University of Liege (1996-2002)	Master in chemistry Sciences

**Language skills:** Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

Language	Reading	Speaking	Writing
French	1	1	1
English	1	2	2
Dutch	3	3	4

**Present position:** IRE-ELiT ; Head of the Laboratory for Radioactivity Measurement

**Years within the firm:** 6

**Key qualifications:**

- Radiological monitoring of environment: radioactive analysis of low level samples from the environment and the food chain, radiological survey of nuclear and/or NORM sites, Sampling strategies and design of monitoring program.
- Quality assurance and ISO 17025: Technical responsible for radiochemical analysis methods. Internal auditor (chapter 4 and 5), expert for method development and validation.
- Experts for international projects
- Radiochemistry: Alpha spectroscopy, liquid scintillation counting, proportional counting, Chemistry of actinides elements, Nuclear waste reprocessing: separation process by liquid-liquid extraction, Radiation Protection, Handling of radioactive elements and sources ( $\alpha$ & $\beta$  emitters).
- Nuclear emergency planning and response: Radiological assessment, atmospheric dispersion and dose calculation, measurement of contaminations. Environmental sampling.

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- Physicochemical analysis: 1D&2D NMR spectroscopy (1H, 13C, 17O, 31P, 15N), relaxivity measurements (T1 & T2), characterization of paramagnetic organometallics complexes. Mass spectroscopy (ESI-TOF Bruker microTOF spectrometer coupled with a Liquid Handler). Gas Chromatography, UV-VIS-NIR-IR spectroscopy's.
- Organic chemistry: design, synthesis and purification of organic multidentate ligands and their metallic complexes. Reactions under controlled atmospheres, GC and HPLC chromatographies.

**Other skills:** Computer literate, good knowledge in atmospheric dispersion modelling and emergency planning, management of laboratory, National Security Clearance

### Professional experience

Date from - Date to	Location	Company & reference person	Position	Description
10/2014 - now	Belgium	IRE-ELiT (G. Delécaut, +32 71 82 9387 <a href="mailto:gregory.delecaut@ire-elit.eu">gregory.delecaut@ire-elit.eu</a> )	Head of the Laboratory for Radioactivity Measurement	<ul style="list-style-type: none"> <li>– Management of the radioactive measurement laboratory.</li> <li>– Radiological analysis of environmental samples.</li> <li>– Technical responsible for the radiochemical analysis in the sense of the ISO17025</li> <li>– Involves in the Belgian radiological monitoring program</li> <li>– Participation into international projects</li> </ul>
10/2012 - 10/2014	Belgium	IRE-Elit (B. Deconninck, +32 71 82 95 95 <a href="mailto:benoit.deconninck@ire-elit.eu">benoit.deconninck@ire-elit.eu</a> )	Radiochemist supervisor	<ul style="list-style-type: none"> <li>– Radiological analysis of environmental samples</li> <li>– Technical responsible for the radiochemical analysis in the sense of the ISO17025</li> <li>– Involves in the Belgian radiological monitoring program</li> </ul>
5/2009 - 10/2012	Belgium	SCK•CEN (K. Van der Meer, +32 14 33 21 52 <a href="mailto:kvdmeer@sckcen.be">kvdmeer@sckcen.be</a> )	Scientific collaborator	<ul style="list-style-type: none"> <li>– Involved in the Belgian nuclear emergency planning (atmospheric dispersion modelling, radiological evaluations)</li> <li>– Advanced J-Rodos user (Real on-line decision support system)</li> <li>– Scientific research and experiments on noble gas retention technologies for the off-gases treatment coming from nuclear facilities.</li> <li>– Teacher for the International school of Radiological Protection (isRP)</li> </ul>

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09/2002-04/2009	Belgium	ULg (A. Luxen, +32 4 3662360 <a href="mailto:aluxen@ulg.ac.be">aluxen@ulg.ac.be</a> )	PhD student - Teaching assistant at the University of Liege (ULg).	<ul style="list-style-type: none"> <li>- subject : Actinide chemistry: reprocessing of nuclear fuels and applications of nuclear magnetic resonance</li> <li>- Scientific research in a PhD thesis field. (Project management, international congress and European workgroup participations, team working, management of laboratory technicians and training courses students)</li> <li>- Management of students during exercise lessons and laboratory exercises (Titulars: Profs. J.F. Desreux, A. Cornelis &amp; J.F. Focant.)</li> </ul>
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### Other relevant information:

#### **Participation in International projects:**

- Non-key expert in the frame of the EC funded project in Thailand and entitled "Enhancing the capacity and effectiveness of the regulatory body and developing a national waste management strategy" (01/2015 – 12/2017).
- Providing training in IRE ELIT facilities on methodologies for the measurement of radioactivity in laboratory to Regulatory Authorities personnel from Bosnia-Herzegovina, Lithuania and Estonia.

#### **Publications**

- Braekers, D.; Turcanu, C.; Olyslaegers, G.; Camps, J. Comparison of the Belgian interventions levels and the new ICRP recommendations for emergency exposures, *Radioprotection* 2013, 45(5), 111-116.
- Braekers, D.; Camps, J.; Paridaens, J.; Saey, P.R.J.; van der Meer, K. Reduction of radioxenon emissions from radiopharmaceutical facilities - A pilot study. *Proceedings Third European IRPA Congress, 2010, Helsinki, Finland, 2364-2373.*
- Braekers, D.; Peters, C.; Bogdan, A.; Rudzevich, Y.; Böhmer, V.; Desreux, J. F. Self-Sorting Dimerization of Tetraurea Calix[4]arenes. *J. Org. Chem.* 2008, 73(2), 701-706.
- Peters, C.; Braekers, D.; Kroupa, J.; Kasyan, O.; Miroshnichenko, S.; Rudzevich, V.; Böhmer, V.; Desreux, J. F. CMPO-calix[4]arenes and the influence of structural modifications on the Eu(III), Am(III), Cm(III) separation. *Radiochimica Acta* 2008, 96(4), 203-210.
- Hudson, M. J.; Boucher, C. E.; Braekers, D.; Desreux, J. F.; Drew, M. G. B.; Foreman, M. R. St. J.; Harwood, L. M.; Hill, C.; Madic, C.; Marken, F.; Youngs, T. G. A. New bis(triazinyl) pyridines for selective extraction of americium(III). *New J. Chem.* 2006, 30(8), 1171-1183.
- Rudzevich V.; Schollmeyer D.; Braekers D.; Desreux J. F.; Diss R.; Wipff G.; Böhmer V. Carbamoylmethylphosphin oxide derivatives based on the triphenylmethane skeleton. Synthesis and extraction properties. *J. Org. Chem.* 2005, 70(15), 6027-6033.

#### **Communications**

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- Braekers, D.; Parret, F.; Demoulin, A.; Chalabi, H.; Assouke, J.F.; Oral presentation: New automatic multi-position evaporation system for gross alpha and gross beta measurement in water. INSINUME, April 2017, Ohrid, Macedonia.
- Braekers, D.; Dieudonné, T.; Assetta, L.; Deconninck, B.; Oral presentation: Radiological environmental monitoring program around the Institute for Radioelements. INSINUME, April 2017, Ohrid, Macedonia.
- Braekers, D.; Doumont, C.; Di Pasquale, S.; Deconninck, B.; Rapid analysis of  $^{90}\text{Sr}$  and  $^{99}\text{Tc}$  in low active effluent using extraction disks: the advantages of the use of liquid scintillation counting., LSC 2017, May 2017, Copenhagen, Denmark.
- Braekers, D.; Jacops, E.; Vandervoort, F.; Moyaux, D.; Camps, J.; Oral presentation: Bench scale adsorption experiments for reducing the radionuclide releases from a medical isotope production facility. Third Workshop on Signatures of Medical and Industrial Isotope Production WOSMIP, June 2012, Strassoldo, Italy.
- Braekers, D.; Camps, J.; Saey, P.R.J.; Verboomen, B.; van der Meer, K. Oral presentation: Overview of the radionuclide emissions from a large radiopharmaceutical Mo-99 production facility. Second Workshop on Signatures of Medical and Industrial Isotope Production WOSMIP, June 2011, Strassoldo, Italy.
- Camps, J.; Turcanu, C.; Braekers, D.; Carlé, B.; Olyslaegers, G.; Paridaens, J.; Rojas Palma, C.; van der Meer, K.; Poster: The “NOODPLAN” early phase nuclear emergency models: an evaluation. Third European IRPA Congress, June 2010, Helsinki, Finland.
- Braekers, D. Oral Presentation: Reduction of radionuclide emissions from radiopharmaceutical facilities - A pilot study. General meeting of the Belgian Association for Radiation Protection (ABR-BVS), December 2009, Brussels, Belgium.
- Braekers, D.; Camps, J.; Saey, P.R.J.; van der Meer, K.; Oral presentation: Reducing the discharge of radioactive noble gases - A review, Independent group of scientific experts on the detection of clandestine nuclear-weapons-usable materials production (IGSE) Workshop, November 2009, Vienna, Austria.
- Desreux, J. F.; Braekers, D.; Peters, C. Nuclear magnetic resonance and actinide ions. Abstract of papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10 2008.
- Braekers, D.; Desreux, J.F. Poster: Nuclear magnetic resonance studies of solutions of actinide ions and their complexes. A contribution of NMR to radiochemistry Second international nuclear chemistry congress, April 2008, Cancun, Mexico.
- Braekers, D.; Peters, C.; Desreux, J.F. Poster: Nuclear Magnetic Resonance Studies of Actinide Complexes. Spectroscopy and Relaxivity, Actinet Plenary meeting (European network of actinide sciences), March 2008, Avignon, France.
- Braekers, D.; Desreux J.F. Poster: NMR investigation of lanthanide complexes of bis triazinyl ligands. 6th International Conference on f-elements (ICFE6), September 2006, Wroclaw, Poland.
- Braekers, D.; Host V.; Desreux, J.F. Oral presentation: Nuclear magnetic resonance: a new tool of actinides chemistry and nuclear wastes reprocessing 4th Young Belgian magnetic resonance scientists symposium, November 2005, Bruxelles, Belgium.

### **Congress, meetings and workshop**

- LSC 2017 conference, May 2017, Copenhagen, Denmark.
- INSINUME 2017, The 7th International Symposium on IN Situ Nuclear Metrology as a tool for radioecology, April 2017, Ohrid, Macedonia.

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- 12<sup>th</sup> Almera coordination meeting, IAEA, October 2013, Monaco.
- Liquid Scintillation counting conference, March 2013, Barcelona, Belgium.
- European IRPA Congress (International Radiation Protection Association) June 2010, Helsinki, Finland.
- WOSMIP Workshop (Workshop on Signatures of Medical and Industrial Isotope Production), June 2009, 2011, 2012 Strassoldo, Italy.
- IGSE Workshop (Independent group of scientific experts on the detection of clandestine nuclear-weapons-usable materials production) November 2009, Vienna, Austria.
- Europart FP6 meetings (EUROpean Research Programme for the PARTitioning of Minor Actinides), January 2005, Manchester, United Kingdom; June 2005, Prague, Czech Republic; January 2006, Aachen, Germany; June 2006, Frascati, Italy; January 2007, Karlsruhe, Germany; June 2007, Göteborg, Sweden.