

Dr. LAURENT BENISVY

Date of birth 04/09/1973 Centro de Química Estrutural
Nationality French Complexo I, Instituto Superior Técnico
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Education

- Leiden Institute of Chemistry (The Netherlands)
Postdoctoral Research Associate, Supervisors: **Pr. Jan Reedijk** **June 2005 – Sept 2006**
“Coordination studies of lanthanide(III) using new salicylamide-type ligands”
- Max-Planck-Institute für Bioanorganische Chemie (Germany) **Jan 2004 – Feb 2005**
Postdoctoral Research Associate, Supervisors: **Dr. Frank Neese, Pr. Karl Wieghardt**
“Syntheses of amino-cyclam and monopyridine-tetraimidazoleligands N5-ligands and coordination studies with Fe^{II/III}”
- “Study of hydrogen-bonded phenoxyl radicals using Resonance Raman, High-field EPR, and DFT-calculation”
University of Nottingham (UK) **Oct 2001 – Dec 2003**
Postdoctoral Research Associate Supervisor: **Pr. C. David Garner**
- “Development of new N,O- and N₂O- phenol imidazole redox active ligands and studies of their radical states when “free”, coordinated to, or remote from a metal centre”
University of Manchester (1 year) and Nottingham (2 years) (UK) **Oct 1998 – Oct 2001**
PhD, bioinorganic chemistry, Supervisor: **Pr. C. David Garner**
- “Design, synthesis and characterization of novel stable Cu(II)-phenoxyl radical complexes as chemical models of the active form of galactose oxidase”
Birkbeck College, University College London (UK) **Sept 1997 – June 1998**
Research experience, Supervisor: Dr. Peter Heard
- “Study of fluxional rearrangements of palladium and platinum complexes bearing tridentate N(O) – ligands”
University Paris V and University Paris XII (France) **Sept 1996 – Sept 1997**
Diplome d’Etudes Approfondies (DEA), bioinorganic chemistry
Supervisor: **Pr. Jean-Claude Chottard**
- “Syntheses and characterization of novel Fe(II/III) complexes bearing mixed N,S,O donor ligands”
University Paris V (France) **1992 – 1996**
MSCI Chemistry, Laboratory project (2 months), ENS (Paris), Supervisor: **Pr. Pierre Sinai**
“Synthesis of a novel galactose precursor for the preparation of C-C disaccharides”

skills

- *Strong experience in multi-step syntheses of organic molecules: sugar derivatives, imidazole- and phenol- based molecules (NO-bidentate, N₂O-tridentate, N₂SO-multidentate, N5-pentadentate ligands), amine-based macrocycles (amino cyclam derivative, N5-pentadentate ligand)*
- *Syntheses of transition metal complexes mainly with Fe, Co, Ni, Cu, Zn, and lanthanides.*
- *Chemical and/or electrochemical syntheses organic phenoxyl radical and radical complexes*
- *Use routinely Schlenk line, Schlenk vassel, and glove-box for the preparation and/or manipulation of air-sensitive compounds (such as organic radicals)*

- *Routine measurement and spectra analysis:* NMR (^1H , ^{13}C , 2D), IR, UV/vis/NIR, EPR(X-band only)
- *Experience in assisting the measurement of W-band EPR Spectra simulation for free radicals only.*
- *Electrochemical techniques:* Cyclic voltammetry (CV), Square-wave voltammetry (SQV), Control-potential-electrolysis (CPE).
- *Experience in assisting spectroelectrochemical techniques:* Optically-Transparent-Thin-Layer-Electrode (OTTLE) OTTLE-UV/vis, -IR, -NIR.
- *Crystallographic techniques:* Solving X-ray crystal structures; *Software commonly used:* SHELX, XP, ORTEP, PLATON, OLEX, Mercury. *Database:* CCD.
- *Experience in DFT-calculation: only for organic radicals cases. Use of ORCA program*
- *Computing skills:* Microsoft Office (Word, Excel, Powerpoint), Corel Office (Corel draw, Corel Presentation, Corel Quattro), Origin, Chem Office (Chemdraw, Chem 3D), ISISdraw. *Databases:* Beilstein, Sci Finder.

Teaching Experience

Demonstrator responsibilities include: holding laboratory sections, developing and performing in-class demonstrations for general chemistry, short talks on the experiments, marking of practicals reports and individual assessment of the students.

1997-1998 : Inorganic chemistry, Birkbeck College (London) – *1st, 2nd year* (BSc)

1998-1999 : Inorganic chemistry, University of Manchester – *1st year* (BSc)

1999-2002 : Inorganic chemistry, University of Nottingham - *1st year* (BSc)

Research project supervisor (Jan 2000 – Dec 2003) This has involved the elaboration of new scientific projects, the leadership of a group of several MSc and PhD students (training and supervision), aid in oral presentation and writing up project report.

Publications

L. Benisvy,* D. Hammond, D. Parker, E. S. Davies, C. D. Garner,* J. McMaster,* C. Wilson, F. Neese*, E. Bothe, R. Bittl, C. Teutloff., to be submitted to *Chem. Eur. J.*, “A H-bonded *ortho*-Thioether Phenoxy Radical: A Chemical and Spectroscopic Analogue of Tyr272 in *apo*-Galactose Oxidase”

L. Benisvy, P. Gamez, S. Tanase, O. Roubeau, W. T. Fu, H. Kooijman, A. L. Spek, A. Meijerink, J. Reedijk, to be submitted to *Inorg. Chem.* “Lanthanide organic framework using O5-multidentate hydroxyl isophthalic ligands: syntheses Structure, magnetic and luminescent properties.”

L. Benisvy, R. Kannappan, Y. Song, S. Milikisyants, M. Huber, I. Mutikainen, U. Turpeinen, P. Gamez, L. Bernasconi, E. J. Baerends, F. Hartl, J. Reedijk,* submitted to *Eu. J. Inorg. Chem.* **2006**, “A square-planar Ni(II)-di-Phenoxy Mono-Radical Complex”

L. Benisvy, I. Mutikainen, M. Quesada, U. Turpeinen, P. Gamez, J. Reedijk*, *Chem. Commun.*, **2006**, 3723. “The self-assembly between C_2 -symmetric (methanol)₆ or S_6 -symmetric (ethanol)₆ cyclohexamers and paddle-wheel dinuclear copper units leads to unique 1D polymer chains”

L. Benisvy, S. Halut, B. Donnadieu, J. P. Tuchagues, J. C. Chottard, Y. Li.,* Submitted to *Inorg. Chem.*, **2006**, 45, 2403 “Monomeric Iron(II)-Hydroxo and Iron(III)-Dihydroxo Complexes Stabilised by Intermolecular Hydrogen Bonding”

L. Benisvy,* E. Bill, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner,* E. J. L. McInnes, J. McMaster,* S. Ross, and Claire Wilson. *Dalton. Trans.*, **2006**, 258. “New Stable Phenoxy Radicals intramolecularly H-bonded or coordinated to Copper(II) and Zinc(II)”

L. Benisvy,* R. Bittle, E. Bothe, C. D. Garner, J. McMaster, S. Ross, C. Teutloff, F. Neese,* *Angew. Chem. Int. Ed.*, **2005**, 44, 5314. “Phenoxy Radicals Hydrogen-Bonded to Imidazolium: Analogues of TyrD’ of Photosystem II: High-Field EPR and DFT-studies”

L. Benisvy, J.-C Chottard, J. Marrot, and Y. Li,* *Eur. J. Inorg. Chem.*, **2005**, 999. “Iron-Assisted Oxidative Radical C-C Bond Cleavage”

L. Benisvy,* E. Bill, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner,* C. Guindy, E. J. L. McInnes, J. McMaster,* G. McArdle, C. Wilson and J. Wolowska., *J. Chem. Soc. Dalton. Trans.*, **2004**, 3647. “Phenolate and Phenoxy radical Complexes of Co(II) and Co(III)”

L. Benisvy,* A. J. Blake, D. Collison, E. S. Davies, C. D. Garner,* E. J. L. McInnes, J. McMaster,* G. Whittaker and C. Wilson., *J. Chem. Soc. Dalton. Trans.*, **2003**, 1975. “A Phenol-Imidazole Pro-ligand that can Exist as a Phenoxy Radical, Alone and when Complexed to Copper(II) and Zinc(II)”

L. Benisvy, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner,* E. J. L. McInnes, J. McMaster,* G. Whittaker and C. Wilson., *Chem. Comm.*, **2001**, 1824. “A Phenoxy-Radical Complex of Copper(II)”

Presentations/Talks/Conferences

Laurent Benisvy, E. Bill, F. Neese, K. Wieghardt. Poster presentation, *Eurobic 7*, Sept **2004**, Garmisch-Partenkirchen, Germany. New Sterically Hindered N5-Pentadentate *pro*-Ligand and their Transition Metal Complexes.

L. Benisvy, E. S. Davies, C. D. Garner, J. McMaster, D. Parker, F. Neese. Poster presentation, *Eurobic 7*, Sept. **2004**, Garmisch-Partenkirchen, Germany. Biomimetic Models of H-bonded Tyrosyl Radicals.

L. Benisvy, O. Einsle, A. Messerschmidt, R. Huber, P. Kroneck, E-G. Jäger, F. Neese, and K. Wieghardt. Poster presentation, *Fachbeirat und Kuratorium*, March **2004**, Mülheim an der Ruhr, Germany. Toward the Modelling of the Active Site of Cytochrome c Nitrite Reductase.

L. Benisvy, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner, E. J. L. McInnes, J. McMaster, and C. Wilson. *J. Inorg. Biochem.*, 2003, **96** (1), 101. Poster presentation. *ICBIC 11*, July **2003**, Cairns, Australia. New *N,O* – *pro* -Ligands Capable of Stabilising a Phenoxy Radical State as «Free» and when Bound to Zn(II) and Cu(II).

L. Benisvy, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner, E. J. L. McInnes, J. McMaster, and C. Wilson. Oral presentation. *Final year PhD presentation symposium* (runner up price), June **2001**, Nottingham, UK. New Phenoxy Radical *pro*-Ligands and their Complexes.

L. Benisvy, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner, E. J. L. McInnes, J. McMaster, and C. Wilson., *J. Inorg. Biochem.*, 2001, **86** (1), 144. Poster presentation. *ICBIC 10*. August **2001**, Florence, Italy. A Phenoxy-Radical Complex of Copper(II): A Chemical Analogue of the Active Form of Galactose Oxidase.

L. Benisvy, A. J. Blake, D. Collison, E. S. Davies, C. D. Garner, E. J. L. McInnes, J. McMaster, and C. Wilson.,. Oral presentation. *USIC* (University of Scotland Inorganic Conference), Sept.**2001**, St-Andrews, Scotland. Modelling the Active Form of Galactose Oxidase.

L. Benisvy, C. D. Garner, J. McMaster. Oral presentation. “*Chemistry at the heart of England*” (conference that welcomes one elected participant of each university in the U.K.), Mars **2000**, Wolverhampton, UK. A Radically New Chemistry.

L. Benisvy, C. D. Garner, D. Collison, M. Helliwell. Poster presentation. *European Bioinorganic Training Course*, April **1998**, Louvain-la-Neuve, Belgium. The Development of Chemical Analogues of Metalloenzymes Containing Tyrosine Residues in their Active site.

Languages

Native languages: French; Fluent: English – written and spoken; Fair level in Spanish

Referees

Frank Neese (neese@mpi-muelheim.mpg.de); Doctor and Staff Scientist
MPI für Bioanorganische Chemie
Stiftstr. 34-36; 45470 Mülheim an der Ruhr, Germany

Dave Garner (Dave.Garner@nottingham.ac.uk) ; Professor Doctor of chemistry, FRS
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University Park, NG7 2RD Nottingham (UK)

Jan Reedijk (reedijk@chem.leidenuniv.nl) ; Professor Doctor of chemistry
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P.O> Box 9502, 2300 RA Leiden, The Netherlands