

**Short-CV Prof. Dr. Antoni Llobet**

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ResearcherID: C-3296-2016

Date/place of birth: 14.10.1960/Sabadell, Barcelona (Spain)

Full Professor of Chemistry at the Universitat Autònoma de Barcelona (Spain), Group Leader at the Institute for Chemical Research of Catalonia (ICIQ), Tarragona (Spain).

**Professional Appointments and Key Dates:**

Sept 1977 - June 1982	Bachelors Chemistry Studies, Univ. Autònoma de Barcelona (UAB)
July 1982 - June 1983	Master, UAB (Prof. J. Casabo)
July 1982 – July 1985	PhD, UAB (Prof. F. Teixidor)
Aug. 1985 – Nov. 1987	Postdoc, Univ. of North Carolina, USA (Prof. T. J. Meyer)
Dec. 1987 – 1990 Feb.	Associate Prof. UAB
March 1990 – June 1990	Dow Corning-University of Sussex, Researcher
July 1989 – Dec. 1990	Scientific Officer, Commission of European Communities, Brussels, Belgium
Jan. 1991 – Sept. 1993	Senior Research Associate, Texas A&M University, USA (Prof. Sawyer & Martell)
Feb. 1993 – Nov. 2004	Associate Prof/Full Prof. (since 2000), Univ. de Girona (UG), Spain
Sept. 2011 – July 2013	Guest Professor at, Department of Bioinspired Science, Ewha Womans University, Seoul (Korea)
Dec. 2004 -	Full Prof. UAB
Sept. 2006 -	Group Leader, Institute of Chemical Research of Catalonia (ICIQ)

**Awards and Fellowships:**

1985 (2 years) Fulbright “La Caixa” grant. Post-Doct Uni. of North Carolina, USA (Prof. T. J. Meyer)

1988 (3 months) Visiting Professor, University of North Carolina, USA (Prof. T. J. Meyer)

1989 (4 months) Visiting Professor, Univ. Joseph Fourier, Grenoble, France (Prof. A. Deronzier)

1993 (4 months) Visiting Professor, Texas A&amp;M University, USA (Prof. A. E. Martell)

1995 (3 months) Visiting Professor, Universität Basel, Switzerland (Prof. A. Zuberbühler)

2000 (1 month) Visiting Professor, Stanford University, USA (Prof. T.D. P. Stack)

2004 (3 month) Visiting Professor, University of Minnesota, USA (Prof. C. J. Cramer)

2015 (1 month) Visiting Professor, Universite Bretagne Occidental, France. (Prof. Y LeMest)

2000 Recipient of the Distinction Award for “Young Scientists” from the Catalan Government

2011 Recipient of the Bruker-Inorganic Chemistry Award, from Spanish Royal Society (RSEQ).

2012 Recipient of the “Hermanos Elhuyar-Hans Goldschmidt” lecture, awarded jointly by the RSEQ and the German Chemical Society (GDCh).

2018 Recipient of the “Animesh Chakravorty” Endowment Lecture by the Chemical Research Society of India (CRSI).

2018 Recipient of the “Alexander von Humboldt Research Award” for a career achievement awarded by the Humboldt Foundation in Germany.

#### **Referee:**

- Member of the Editorial Advisory Board:
  - a) *Catalysis Science and Technology (Cat. Sci. Technol.)* from the Royal Society of Chemistry, UK. Since January 2014.
  - b) *Inorganic Chemistry (Inorg. Chem.)* from the American Chemical Society, USA. Since January 2015.
  - c) *European Journal of Inorganic Chemistry (Eur. J. Inorg. Chem.)* from Wiley-VCH., Since January 2017.
- Referee of international journals: Science, Nature, Nature Chemistry, Journal of the American Chemical Society, Angewandte Chemie, Chemical Science, Chemistry A European Journal, Inorganic Chemistry, European Journal of Inorganic Chemistry, etc.
- Referee of projects from: Department of Energy (USA), Petroleum Research Fund (ACS-USA), National research agencies of Holland, Italy, France, Argentina and Mexico and from all levels of Spanish national and local research system.
- Evaluation of prestigious academic institutions: Leiden Institute of Chemistry, Univ. of Leiden the Netherlands; The Institute of Basic Science at the Korean Advanced Institute for Science and Technology, (KAIST), Daejeon, Korea.

- Member of the Eurobic Medal Award Committee funded by the European Biological Inorganic Chemistry Conference.

## Other

- Recipient of multiple competitive research projects from the Local Government, Spanish Government, European Government and from the Petroleum Research Fund from the American Chemical Society.
- Directed, as research advisor, 21 successfully defended PhD thesis in the field of inorganic chemistry and water oxidation.
- Have held administrative positions such as: Director of the Chemistry Department (UG), Vice-President for Research (UG), President of the Foundation “University and Future” (UG).
- Chairman of the international congress: “Molecules and Materials for Artificial Photosynthesis” held in Cancun, Mexico on February 2014, 2016 and 2018.

## Publications and Invited Lectures:

Number of total publications in journals with referees > 200

H<sub>index</sub>: 46 Web of Science  
51 Google Scholar

Reaching close to 900 citations per year in 2014, 2015 and over 1000 in 2016 and 2017.

Invited Lectures at International Conferences and Departments around the world during the last 9 years > 100

## Invited lectures.

- 2008** Departement de Chimie Physique, Université de Genève, Switzerland  
IU CINQUIMA, Valladolid, Spain  
COST Chemistry D40, Tarragona, Spain  
ICCC-38, Jerusalem, Israel  
REQOMED IV, Girona, Spain  
SOLAR-H<sub>2</sub> Summer School, Angstrom Laboratories, Uppsala, Sweden  
SOLAR-H<sub>2</sub>, Bochum, Germany
- 2009** Johannes Kepler University, Linz, Austria  
IBITECS, CEA, Saclay-Orsay, France  
Freie Universität Berlin, Germany

Dipartimento di Scienze Chimiche, Università degli Studi di Padova, Italy  
IU de Química Organometálica “Enrique Moles “, Oviedo, Spain  
ACC1Ó, Barcelona, Spain  
FIGIPAS -10, Palermo, Italy  
Molecular Science for Solar Fuel, Sigtuna, Sweden  
CONSOLIDER-INTECAT, Teruel, Spain

- 2010** Frontiers in Inorganic Chemistry” (FIC-2010), Kolkata, India  
ORCAS- 2010, Friday Harbour, WA, USA  
ChemComm Symposium, Osaka, Japón  
ChemComm Symposium ,Seoul, South Korea  
NiKas-Symposium(CaSuS Prog.), Göttingen, Germany  
EUROBIC, Tessaloniki, Greece  
IRMG, Erlagen, Germany  
ISHC-17, Poznan, Poland  
SOLAR H<sub>2</sub> Berlin, Germany  
CONSOLIDER-INTECAT, Tarragona, Spain
- 2011** University College, Dublin, Ireland  
ICMAB, Barcelona, Spain  
8<sup>th</sup> International School of Organometallic Chemistry, Camerino, Italy  
ZING Conferences, Cancún, Mexico  
Gordon Conference on Inorganic Reaction Mechanisms, Galveston, TX, USA  
EICC-1, University of Manchester, UK  
XXIX Jornadas Chilenas de Química, Quinamávida, Chile  
SOLAR H<sub>2</sub>, Gottröra, Sweden  
Escuela de Verano Fotónica y Fotovoltáica, Tarragona, Spain  
UNIST Workshop, Ulsan, South Korea  
Gordon Conference on Renewable Energy, Ventura, CA, USA
- 2012** School of Chemical and Bioprocess Engineering, University College Dublin, Ireland  
8th ECHEMS Meeting, Bertinoro, Italy  
QIES-2012, University of Girona, Catalonia, Spain  
International Conf. on Nanostructured Systems for Solar Fuel Production, Mallorca, Spain  
Département de Chimie Moléculaire, Université Joseph Fourier, Grenoble,  
Solar to Fuels: Towards an Artificial Leaf, Imperial College, London  
AsBIC-2012, The 6th Asian Biological Inorganic Chemistry Conference, Hong Kong, China  
Institut für Anorganische Chemie-University of Stuttgart, Stuttgart, Germany  
Trinity College Dublin, Dublin, Ireland  
Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, Holland  
3rd International Symposium on Solar Cells and Solar Fuels, Dalian, China.  
Intl. Symp. on Activation of O<sub>2</sub> & Homogeneous Cat. Ox. (ADHOC 2012), Jerusalem, Israel  
PERSPECT H<sub>2</sub>O COST MEETING. EU-Cost Action CM1202, Brussels, Belgique
- 2013** Fakultät für Chemie, Georg-August-Universität, Göttingen, Germany  
Institut für Chemie, Humboldt-Universität zu Berlin, Berlin, Germany  
Solar Fuels Meeting, Univ. Jaume I, Castello, Spain

Solar Fuels Summer School (Technische Universität Darmstadt), Ellwangen, Germany  
COST MEETING EU-Cost Action CM1205, Utrecht, Holland  
School of Chemistry & Chemical Biology -University College Dublin, Dublin, Ireland  
Department of chemistry, Stockholm University, Sweden  
Simposium Química Organometálica y Catálisis Homogénea,RSQE, Santander, Spain  
Wissenschaftsforum Chemie 2013, Darmstadt, Germany

MRS Spring Meeting. Materials Research Society, San Francisco, USA  
PERSPECT H2O COST MEETING. EU-Cost Action CM1202, Prague, Czech Republic  
Symposium: "Impact of the Coordination Chemistry in 100 Years", UNAM, Mexico D.F.  
Department of Chemistry- University of Zürich, Zürich, Switzerland

**2014** ICFO, Castelldefels, Barcelona, Spain  
Université Aix Marseille, Marseille, France  
University of Leiden, Leiden, Holland  
EUROBIC-12, University of Zürich, Switzerland  
ACS, Renewable Energy Generation at Interface Theory-Experiment, San Francisco, USA  
Sustainable Hydrogen and Fuels-Status and Perspectives, Rostock, Germany  
Challenges and Opportunities Solar Driven Fuels Synthesis, Imperial College, London, UK  
KAUST Catalysis Center, University of KAUST, Saudi Arabia

**2015** Residència d'Investigadors CSIC, Barcelona, Spain  
Departement de Chimie, Université, Bretagne de Occidentale, Brest, France  
Laboratoire d'électrochimie moléculaire, Université Paris Diderot, Paris, France  
Ecole Doctorale de Chimie Moléculaire, Université Pierre et Marie Curie, Paris, France  
Laboratoire de Chimie et Biochimie, Université Paris Descartes, Paris, France  
Departement de Chimie, Université de Nantes, France  
School of Chemistry, Newcastle University, Newcastle, UK  
ICIQ-Unicat Summer School, Technische Universität Berlin, Berlin, Germany  
Georg-August-Universität Göttingen, Göttingen, Germany  
Nanostructured materials for light harvesting technologies, IMDEA Mat., Madrid, Spain  
International Conference on Photochemistry, Jeju Island, Korea  
ACS Fall Meeting "Innovation: From Discovery to Application", Boston, USA  
PERSPECT-H2O COST Action CM1202, Gdansk, Poland  
6th EuCheMS Conference on Nitrogen Ligands, Beaune, France  
Pacifichem 2015 Homogeneous Water Splitting Reactions, Hawaii, USA

**2016** KAUST Artificial Photosynthesis Meeting, Thuwal, Saudi Arabia  
2nd Molecules and Materials For Artificial Photosynthesis Conference, Cancun, Mexico  
Dalton 2016 Joint Interests Group Meeting, University of Warwick, Coventry, UK  
Laboratoire de Chimie de Coordination, Toulouse, France  
Tsinghua University, Beijing, China  
Beijing University, Beijing, China  
Chinese Academy of Sciences, Beijing, China  
42nd International Conference on Coordination Chemistry, Brest, France  
KAIST (Korea Advanced Institute of Science and Technology) Daejeon, Korea  
Ewha Womans University, Seoul, Korea  
Brookhaven National Laboratory, Long Island, New York, USA

252 ACS Meeting, Philadelphia, Manipulating Energy and ET in Molec, and Devices, USA.  
Perspect-H2O Final Cost Meeting, Milazzo, Italy.  
Solar Fuels i-Core meeting, Kibbutz Nahsholim Hotel, Israel.  
Cecam, Interface processes in photochemical water splitting: Theory&Exp, Lausanne, CH.  
Department of Chemistry, University of Fribourg, CH.  
SERC-Conf-2016, Energy Storage: Funda. to App., Univ. of North Carolina, Chapel Hill, USA  
Department of Chemistry, Charles University, Prague, Czech Republic.  
Department of Chemistry, Technical University of Vienna, Austria  
Department of Chemistry, Stockholm University, Sweden

**2017** Umeå Renewable Energy Meeting 2017, Umea, Sweden  
Carisma COST meeting, Lisbon, Portugal  
EuChems Inorganic Chemistry Conference, EICC-4, Copenhagen, Denmark  
XXXVI Reunión bienal de la Real Sociedad Española de Química, Sitges, Spain  
6th SolTech Conference, 2017, Solar GoHybrid, Munich, Germany  
1st Ulm Symposium on Solar-Driven Chemistry, Ulm, Germany  
Department of Chemistry, Ben Gurion University, Beer Sheva, Israel  
Department of Chemistry, Weizmann Institute of Science, Revohov, Israel

## Selected publications

1. "Complete  $\sigma^*$  Intramolecular Aromatic Hydroxylation Mechanism through O<sub>2</sub> Activation by a Macrocyclic Dinuclear Copper(I) Complex"  
*J. Am. Chem. Soc.* **2008**, *130*, 17710-17711.  
Poater, A.; Ribas, X.; Cavallo, L.; Llobet, A.; Sola, M.
2. "Oxygen-oxygen bond formation by the Ru-Hbpp water oxidation catalyst occurs solely via an intramolecular reaction pathway"  
*J. Am. Chem. Soc.* **2009**, *131*, 2768-2769.  
Romain, S.; Bozoglian, F.; Sala, X.; Llobet, A.
3. "Water oxidation catalysts based on transition metal complexes"  
*Angew. Chem. Int. Ed.* **2009**, *48*, 2842-2852.  
Sala, X.; Romero, I.; Rodríguez, R.; Escriche, L.; Llobet, A.
4. "The Ru-Hbpp Water Oxidation Catalyst"  
*J. Am. Chem. Soc.* **2009**, *131*, 15176-15187.  
Bozoglian, F.; Romain, S.; Ertem, M. Z.; Todorova, T. K.; Sens, C.; Mola, J.; Rodríguez, M.; Cramer, C. J.; Gagliardi, L.; Llobet, A. et al.
5. "Water Oxidation at a Tetraruthenate Core stabilized by Polyoxometalate Ligands: Experimental and Computational Evidence to trace the Competent Intermediates"  
*J. Am. Chem. Soc.* **2009**, *131*, 16051-16053.  
Sartorel, A.; Miro, P.; Salvadori, E.; Romain, S.; Carraro, M.; Scorrano, G.; Di Valentin, M.; Llobet, A.; Bo, C.; Bonchio, M.
6. "Oxygen-Oxygen Bond Formation Pathways Promoted by Ru Complexes"  
*Acc. Chem. Res.* **2009**, *42*, 1944-1953.  
Romain, S.; Vigara, L.; Llobet, A.

7. "Facile C-H bond cleavage via a proton coupled electron transfer involving a C-H•••CuII interaction".  
*J. Am. Chem. Soc.* **2010**, *132*, 12299-12306.  
Ribas, X.; Calle, C.; Poater, A.; Casitas, A.; Gomez, L.; Xifra, R.; Parella, T.; Benet-Buchholz, J.; Schweiger, A.; Mitrikas, G.; Sola, M.; Llobet, A.; Stack, T. D. P.
8. "The cis-[Ru<sup>II</sup>(bpy)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]<sup>2+</sup> Water-Oxidation Catalyst Revisited"  
*Angew. Chem. Int. Ed.* **2010**, *49*, 7745-7747.  
Sala, X.; Ertem, M. Z.; Vigarà, L.; Todorova, T. K.; Chen, W.; Rocha, R. C.; Cramer, C. J.; Gagliardi, L.; Llobet, A.
9. "Water Oxidation in the Context of the Energy Challenge: Tailored Transition-Metal Catalysts for Oxygen-Oxygen Bond Formation".  
*Angew. Chem. Int. Ed.* **2011**, *50*, A30-A33.  
Llobet, A.; Meyer, F.
10. "A Molecular Ruthenium Catalyst with the Water-Oxidation Activity Comparable to that of Photosystem II"  
*Nat. Chem.* **2012**, *4*, 418-423.  
Duan, L.; Bozoglian, F.; Mandal, S.; Stewart, B.; Privalov, T.; Llobet, A. Sun, L.
11. "Ligand Geometry Directs O-O Bond Formation Pathway in New trans-RuHbpp Based Water Oxidation Catalyst"  
*Angew. Chem. Int. Ed.* **2012**, *51*, 5967-5970.  
Maji, S.; Vigarà, L.; Cottone, F.; Bozoglian, F.; Benet-Buchholz, J.; Llobet, A.
12. "Catalytic Four-Electron Reduction of Dioxygen via Rate-Determining Proton-Coupled Electron Transfer to a Dinuclear Cobalt- $\mu$ -1,2-Peroxo Complex"  
*J. Am. Chem. Soc.* **2012**, *134*, 9906-9909.  
Fukuzumi, S.; Mandal, S.; Mase, K.; Ohkubo, K.; Park, H.; Benet-Buchholz, J.; Nam, W.; Llobet, A.
13. "Synthesis, Electronic Structure and Magnetism of [Ni(6-Mes)<sub>2</sub>]<sup>+</sup>: A Two-Coordinate Nickel(I) Complex Stabilized by Bulky N-Heterocyclic Carbenes"  
*J. Am. Chem. Soc.* **2013**, *135*, 13640-13643.  
Poulten, R. C.; Page, M. J.; Algarra, A. G.; Le Roy, J. J.; Lopez, I.; Carter, E.; Llobet, A.; Macgregor, S. A.; Mahon, M. F.; Murphy, D. M.; Murugesu, M.; Whittlesey, M. K.
14. "Protonation Equilibrium and Hydrogen Production by a Dinuclear Cobalt- $\mu$ -Hydride Complex Reduced by Cobaltocene with Trifluoroacetic Acid"  
*J. Am. Chem. Soc.* **2013**, *135*, 15294-15297.  
Mandal, S.; Shikano, S.; Yamada, Y.; Lee, Y.-M.; Nam, W.; Llobet, A.; Fukuzumi, S.
15. "A Self-improved Water Oxidation Catalyst; Is One Site Really Enough?"  
*Angew. Chem. Int. Ed.* **2014**, *53*, 205-210.  
López, I.; Ertem, M. Z.; Maji, S.; Benet-Buchholz, J.; Keidel, A.; Kuhlmann, U.; Hildebrandt, P.; Cramer, C. J.; Batista, V. S.; Llobet, A.
16. "Molecular Water Oxidation Mechanisms Followed by Transition Metals: State of the Art"  
*Acc. Chem. Res.*, **2014**, *47*, 504-516.  
Sala, X.; Maji, S.; Bofill, R.; García-Antón, J.; Escriche, L.; Llobet, A.
17. "New Powerful and Oxidatively Rugged Dinuclear Ru WOCs: Control of Mechanistic Pathways by Tailored Ligand Design"  
*J. Am. Chem. Soc.* **2014**, *136*, 24-27.  
Neudeck, S.; Maji, S.; López, I.; Meyer, S.; Meyer, F.; Llobet, A.

18. "Molecular Artificial Photosynthesis"  
*Chem. Soc. Rev.*, **2014**, *43*, 7501-7519.  
Berardi, S.; Drouet, S.; Francàs, L.; Gimbert-Suriñach, C.; Guttentag, M.; Richmond, C.; Stoll, T.; Llobet, A.
19. "Efficient and Limiting Reactions in Aqueous Light-Induced Hydrogen Evolution Systems Using Molecular Catalysts and Quantum Dots".  
*J. Am. Chem. Soc.* **2014**, *136*, 7655-7661.  
Gimbert-Surinach, C.; Albero, J.; Stoll, T.; Fortage, J.; Collomb, M.-N.; Deronzier, A.; Palomares, E.; Llobet, A.
20. "Redox Non-Innocent Ligand Controls Water Oxidation Overpotential in a New Family of Mononuclear Cu-Based Efficient Catalysts"  
*J. Am. Chem. Soc.* **2015**, *137*, 6758-6761.  
Garrido-Barros, P.; Funes-Ardoiz, I.; Drouet, S.; Benet-Buchholz, J.; Maseras, F.; Llobet, A.
21. "Intramolecular proton transfer boosts water oxidation catalyzed by a Ru complex"  
*J. Am. Chem. Soc.* **2015**, *137*, 10786-10795.  
Matheu, R.; Ertem, M.Z.; Benet-Buchholz, J.; Coronado, E.; Batista, V. S.; Sala, X.; Llobet, A.
22. "Tracking the Structural and Electronic Configurations of a Cobalt Proton Reduction Catalyst in Water".  
*J. Am. Chem. Soc.* **2016**, *138*, 10586-10596.  
Moonshiram, D.; Gimbert-Suriñach, C.; Guda, A.; Picon, A.; Lehmann, C. S.; Zhang, X.; Doumy, G.; March, A. M.; Benet-Buchholz, J.; Soldatov, A.; Llobet, A.; Southworth, S. H.
23. "A Million Turnover Molecular Anode for Catalytic Water Oxidation."  
*Angew. Chem. Int. Ed.* **2016**, *55*, 15382-15386.  
Creus, J.; Matheu, R.; Peñafiel, I.; Moonshiram, D.; Blondeau, P.; Benet-Buchholz, J.; García-Antón, J.; Sala, X.; Godard, C.; Llobet, A.
24. "Structural and Spectroscopic Characterization of Reaction Intermediates Involved in a Dinuclear Co-Hbpp Water Oxidation Catalyst."  
*J. Am. Chem. Soc.* **2016**, *138*, 15291-15294.  
Gimbert-Suriñach, C.; Moonshiram, D.; Francas, L.; Planas, N.; Bernales, V.; Bozoglian, F.; Guda, A.; Mognon, L.; López, I.; Hoque, Md A.; Gagliardi, L.; Cramer, C. J.; Llobet, A.
25. "Photoelectrochemical Behavior of Molecular Ru-Based Water-Oxidation Catalysts Bound to TiO<sub>2</sub>-Protected Si Photoanodes".  
*J. Am. Chem. Soc.* **2017**, *139*, 11345-11348.  
Matheu, R.; Moreno-Hernandez, I. A.; Sala, X.; Gray, H. B.; Brunschwig, B. S.; Llobet, A.; Lewis, N. S.
26. "Electronic  $\pi$ -delocalization Boosts Catalytic Water Oxidation by Cu(II) Molecular Catalysts Heterogenized on Graphene Sheets."  
*J. Am. Chem. Soc.* **2017**, *139*, 12907-12910.  
Garrido-Barros, P.; Gimbert-Suriñach, C.; Moonshiram, D.; Picon, A.; Monge, P.; Batista, V. S.; Llobet, A.

#### Book

'Molecular Water Oxidation Catalysis: A Key Topic for New Sustainable Energy Conversion Schemes'.

Edited by Antoni Llobet

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