

# **CURRICULUM VITAE**

**ARMANDO J.L. POMBEIRO**

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## CURRICULUM VITAE (Abridged)

*Name* - **Armando José Latourrette de Oliveira Pombeiro** (*Armando J.L. Pombeiro*)

*Official address* – Centro de Química Estrutural (CQE), Instituto Superior Técnico (IST), University of Lisbon (ULisboa), Av. Rovisco Pais, 1049-001 Lisboa. Portugal (Tel. - 218419237, 218419225. *E-mail*: [pombeiro@tecnico.ulisboa.pt](mailto:pombeiro@tecnico.ulisboa.pt)).

*Homepage*: [http://cqe.ist.utl.pt/personal\\_pages/pages/armando\\_pombeiro.php](http://cqe.ist.utl.pt/personal_pages/pages/armando_pombeiro.php)

*Date and Place of Birth* - June 9th, 1949, Porto.

*Nationality* - Portuguese.

*Education* - Chemical Engineering (1971, IST); D. Phil. (1976, Univ. Sussex).

*Present positions* - Full Professor (IST), President of CQE and Coordinator/founder of the research Group “Coordination Chemistry and Catalysis” and of the Thematic Line on “Synthesis and Catalysis”.

***Honorary and official appointments, membership of professional bodies, commissions, etc.:***

Full Member of the *Academy of Sciences of Lisbon* (since 1988), Vice-President of the Class of Sciences of the Academy (2006-12, and 1999-2000), Secretary-General of the Academy (2001-05) and Secretary of its Class of Sciences (2001-05), Vice-Secretary-General of the Academy and Secretary of its Class of Sciences (1998), Vice-Secretary of this Class (1993-98), Member of the Commission for Publications of this Academy; a Coordinator of the International Affairs of the Academy; a Representative of the Academy at ICSU and at the European Science Foundation; Member of the European Academies' Science Advisory Council (EASAC);

Member of the Higher Council for Science, Technology and Innovation (2004) and of the Higher Council for Science and Technology (1995) (Portugal); Member of the External Evaluation Commission of the Physical Sciences of the Portuguese Universities (2002); Member of the Panel of External Experts assessing the Eng. Chem. Processes Department of the Univ. Padova (2005); Member of the Physical and Engineering Science and Technology Panel (1999) and of the Advisory Panel on the ASI Programme (1995-98), of the NATO Science Programme;

President of the restructured CQE (since 2015) and member of the directive body (since 2001);

Invited Chair Professor at the National Taiwan University of Science and Technology (2007-).

Member and co-founder of the Portuguese Electrochemical Society, President (since 2009, 1994-95, 1988-89), Vice-President (1990-91) and Secretary (1983-87) of this Society; Member and co-founder of the Iberoamerican Society of Electrochemistry and National Representative (1992-96) at this Society; Member of the International Society of Electrochemistry; Affiliate Member of IUPAC; Member of the Portuguese Chemical Society; Fellow of the Royal Society of Chemistry and member of the American Chemical Society;

Chairman of the XXV Int. Conf. Organometallic Chemistry (XXV ICOMC, 2012); Director of a NATO ARW and Chairman of 3 international symposia on Electrochemistry; Member of the Organizing and/or Scientific Committees of a number (over 30) of international congresses on Electrochemistry (of the Iberoamerican Electrochemical Society, of the Journées d'Électrochimie, of the Portuguese Electrochemical Society, Chianti Meetings), on Coordination (ICCC), Organometallic (ICOMC) and Inorganic Chemistries, on Organometallics and Catalysis, and on Solution Chemistry (IUPAC);

Member of the Organizing and/or Scientific Committees of international Schools on Coordination Chemistry (4) and on Organometallic Chemistry (ISOC) (10); Member of the Organizing Committees of various symposia at the Academy of Sciences of Lisbon (on History and Development of Science, on interdisciplinary scientific and social themes);

Director of the FCT PhD Program on “Catalysis and Sustainability” (CATSUS, since its creation, 2014); Coordinator of the scientific area of “Synthesis, Molecular Structure and Chemical Analysis” (IST, 2009-14); Member of the Scientific Commissions of the PhD and Master courses (IST, since 2009); Responsible for the Dual Master Program in Chemistry (IST-Univ. Camerino, since 2009).

Coordinator of the Chemistry PhD Programme (IST, 2000-03); representative of the Inorganic Chemistry Department at the Coordination Commission of the School of Chemical Engineering (IST, 1981-84) and Coordinator of this Department (IST, 1983-84).

**Prizes:** Portuguese Electrochemical Society (2015); Madinabeitia-Lourenço (International Hispano-Portuguese) Prize (Royal Spanish Chem.Soc., 2013); Ferreira da Silva Prize (Port.Chem.Soc., 2012); Stimulus for Excellence (FCT, 2005); Scientific Prize Techn. Univ. Lisbon - Santander Totta (1<sup>st</sup> edition; the highest ranked researcher within chemical, biological and materials sciences, based on productivity and impact factor criteria), 2007.

**Teaching commitments:** Courses on "Catalysis" [CATSUS, IST; DEA and MSc Multinational, *École Polytechnique*, Paris; MSc Chem./Chem. Eng., IST; Erasmus IP courses, *Univ. Camerino*, Italy], "Organometallic Chemistry" (Chem. and MSc, IST), “Advanced Strategies of Synthesis” (Ph.D., IST), “Specialization Laboratories” (MSc, IST), "Inorganic Chemistry" (Chem., IST), "Electrochemical Methods in Synthesis" (MSc, IST), "Laboratory Techniques" (Chem., Chem. or Biolog. Eng., IST), "Analytical Chemistry" (Chem., IST), "Carbyne, Carbene and Isocyanide Complexes" (MSc, Univ. Sussex) and "Coordination Compounds in Pharmacology" (2-years research course, IST).

#### **Main research interests**

- *Activation of small molecules* with biological, pharmacological, environmental or industrial interest or related ones [*e.g.*, *alkanes (functionalization under mild conditions)*, alkynes, phosphalkynes, isocyanides, carbon monoxide, dinitrogen, nitriles, cyanamides, nitric oxide, oximes, oxadiazolines, carboxamides, amidines, olefins, azides or cyanates] by transition metal centres, and developing their application in *metal-mediated synthesis and catalysis*, namely by searching for mimetic systems of biological processes (*e.g.* catalysed by peroxidases, particulate methanemonooxygenase, nitrile hydratases and nitrogenases), alternatives for industrial processes and new types of molecular activation with significance in fine chemistry (including the synthesis of compounds with bioactivity). Also comprehending: *crystal engineering of coordination compounds, self-assembly* of polynuclear and supramolecular structures, transition metal and organometallic chemistries and catalysis in *aqueous media, high pressure gas reactions and catalysis, and catalysis in supercritical fluids*.
- *Molecular Electrochemistry* of coordination and organic compounds, namely towards applications in electrosynthesis, electrocatalysis and in mechanistic studies, as well as in the establishment of potential-structure relationships, and in the induction of chemical reactivity by electron-transfer.
- *Theoretical calculations* for the interpretation of properties and reactivity, at the molecular level.

**Recent projects (under his responsibility):** -“Catalysis and Sustainability” (FCT PhD Program). -“Chemical Synthesis and Catalysis” (National Programme for Re-Equipping Science). -“Catalytic Carboxylation of Alkanes” (POCI 2010 programme, FCT). -“Metal-based Synthons with Pharmacological Significance” (POCTI programme, FCT). -"Coordination Chemistry and Molecular Electrochemistry, Synthesis and Catalysis” (FCT). -“Transition Metal Chemistry and Catalysis in Aqueous Media” (HRM EC Network) (Portuguese team leader).

(FCT – Foundation for Science and Technology. HRM – Human Resources and Mobility Marie Curie Research Training. POCI – Science and Innovation Operational Programme. POCTI - Science, Technology and Innovation Operational Programme)

### **Publications**

1 book (author); 3 books (editor);

ca. 662 research publications (including ca. 82 chapters in books or reviews and ca. 580 other research publications in refereed international journals);

ca. 37 patents;

ca. 17 didactic works; ca. 25 publications on various topics (S&T systems, Academy of Sciences of Lisbon, national electrochemical research, biographies, interviews, etc.).

### **Other contributions**

ca. 97 invited lectures (plenary, keynote and session lectures) at international conferences;

ca. 546 communications at international conferences;

ca. 70 invited lectures at scientific institutions (usually foreign ones).

### **Research training supervision**

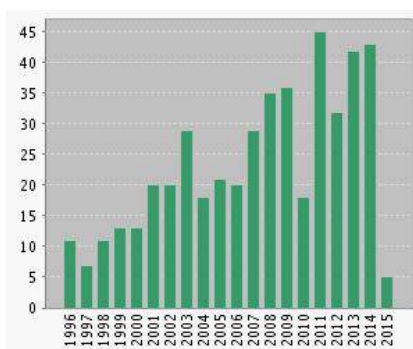
- 21 Ph.D. and 17 M.Sc. theses (degrees awarded),
- ca. 53 Doctorates (mostly foreign Post-doc. Fellows),
- ca. 47 Graduates or Undergraduates (ca. 35 foreign Ph.D., Marie Curie, Erasmus, FCT, etc. grant holders; beyond those whose Ph.D. or M.Sc. degree has already been granted).

### **Citation Report**

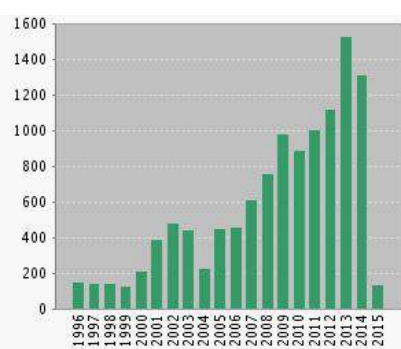
12,696 citations (583 publications found); average citations per publication = 21.78;

h-index = 52 (Web of Science, March 18<sup>th</sup>, 2015)

Published Items in Each Year



Citations in Each Year



Results found: 583

Sum of the Times Cited : 12696

Sum of Times Cited  
without self-citations: 7102

Citing Articles : 4590

Citing Articles without  
self-citations: 4077

Average Citations per  
Item : 21.78

h-index : 52

## CURRICULUM VITAE

### PERSONAL DATA

*Name:* Armando J.L. Pombeiro

*Official address:* Centro de Química Estrutural (CQE), Complexo I, Instituto Superior Técnico (IST), University of Lisbon (ULisboa), Av. Rovisco Pais, 1049-001 Lisboa. Portugal (Tel. - 218419237, 218419225. *E-mail:* [pombeiro@tecnico.ulisboa.pt](mailto:pombeiro@tecnico.ulisboa.pt)).

*Homepage:* [http://cqe.ist.utl.pt/personal\\_pages/pages/armando\\_pombeiro.php](http://cqe.ist.utl.pt/personal_pages/pages/armando_pombeiro.php)

*Date and place of birth:* Porto, June 9th, 1949.

*Nationality:* Portuguese.

#### *Qualifications*

- Chemical Engineering degree [1971, Instituto Superior Técnico (IST), Portugal].
- D. Phil. (1976, The University of Sussex, England; supervisors: Prof. J. Chatt and Dr. R.L. Richards).

*Present Positions:* Full Professor (IST), President of CQE and Coordinator/founder of the research Group “Coordination Chemistry and Catalysis” (former “Coordination Chemistry and Molecular Electrochemistry, Synthesis and Catalysis”) and of the Thematic Line “Synthesis and Catalysis”.

*Career:* Appointed as Assistant (1971), Auxiliary Professor (1976), Associate Professor (1979) and Full Professor (1989) at the IST.

### HONOURS, APPOINTMENTS, MEMBERSHIP, COMMISSIONS, ETC.

#### SCIENTIFIC AND CULTURAL SOCIETIES (Membership)

- Academy of Sciences of Lisbon (since 1981; Full Member since 1988).
- Royal Society of Chemistry (Fellow - F.R.S.C., C. Chem., 1986-2012).
- New York Academy of Sciences (1995-2004).
- European Society of Chemistry (since 1999).
- IUPAC (Affiliate Member, since 1987).
- American Chemical Society (2006-2012).
- Portuguese Electrochemical Society (founder member, since 1983).
- International Society of Electrochemistry (since 1981).
- Iberoamerican Electrochemical Society (SIBAE; co-founder member since 1990; national representative member, 1992-96).
- Portuguese Chemical Society.
- “Grémio Literário” (Literary Society, since 1981).
- Lisbon Academy of Sciences’ Friends Association (co-founder member, 2002-06)
- “Sociedade de Geografia de Lisboa” (Geographical Society, since 2003).
- “Casa de Cultura” (House of Culture) Prof. Dr. José Pinto Peixoto (co-founder member, since 1999; honorary member since 2009).

## AT THE ACADEMY OF SCIENCES OF LISBON AND RELATED ORGANIZATIONS

- Full Member (“Membro Efectivo”) of the Academy of Sciences of Lisbon (elected in 1988); Correspondent Member (“Membro Correspondente”) (1980-1988).
- Vice-President of the Class of Sciences of the Academy of Sciences of Lisbon (2006-12, and 1999-2000).
- Secretary-General of the Academy of Sciences of Lisbon and Secretary of its Class of Sciences (2001-05).
- Vice-Secretary-General of the Academy of Sciences of Lisbon and Secretary of its Class of Sciences (1998).
- Vice-Secretary of the Class of Sciences of the Academy of Sciences of Lisbon (1993-98).
- Member of the Administrative Council of the Academy of Sciences of Lisbon (1998, 2001-06)
- Member of the Higher Council for Science, Technology and Innovation (Ministry of Science and Higher Education) (as representative of the Academy of Sciences of Lisbon, 2004).
- Member of the Higher Council for Science and Technology (Ministry of Planning and Territorial Administration, Secretary of State for Science and Technology) (as representative for the Academy of Sciences of Lisbon, 1995).
- A Coordinator of the International Affairs of the Academy of Sciences of Lisbon (2006-2011).
- Representative of the Academy of Sciences of Lisbon at ICSU (International Council for Science) (since 2006).
- Representative of the Academy of Sciences of Lisbon at the European Science Foundation (ESF) (since 2007).
- Member of the European Academies' Science Advisory Council (EASAC) (since 2001).
- Member of the Commission for Publications of the Academy of Sciences of Lisbon (1981-2007).
- Member of the Commission for the Vocabulary of Technical and Scientific Portuguese Words (Academy of Sciences of Lisbon) (1984).
- Member of the reviewers board (chemical terms) for the Dictionary of the Portuguese Language, Academy of Sciences of Lisbon, 2001.
- Member of the Advisory Council of the Institute of the Lexicology and Lexicography of the Portuguese Language of the Academy of Sciences of Lisbon (2008).
- Member and co-founder of the Lisbon Academy of Sciences' Friends Association (2002).
- Representative of the Academy of Sciences of Lisbon at various meetings of international organizations, namely:
  - First European Academies Science Advisory Council (EASAC) Meeting, Belgium Academy of Sciences, Brussels, September 6<sup>th</sup>, 2001;
  - Fourth Meeting of the European National Members of the International Council for Science (ICSU), ICSU Headquarter, Paris, October 20<sup>th</sup>, 2006;
  - 2007 Round Table Meeting of the Standing Committee for Physical & Engineering Sciences (PESC) with European Science Foundation (ESF) Member Organisations in Chemistry, London, June 14<sup>th</sup> -15<sup>th</sup>, 2007;
  - Science Policy Conference, ESF, Maison de la Region Alsace, Strasbourg, November 28-29<sup>th</sup>, 2007;

- Meeting of the EASAC Council, Institut de France, Paris, December 19<sup>th</sup> - 20<sup>th</sup>, 2007.
  - ESF-ALLEA (“All European Academies”) High Level Workshop on the Collaboration between ESF and the Academies, ESF, Brussels, March 7<sup>th</sup>, 2008 (presentation of a lecture on “The Academy of Sciences of Lisbon within an ESF-ALLEA Context”, in co-authorship with E. Arantes e Oliveira).
  - ALLEA Extraordinary Strategy Meeting (Strategic Plan 2010-2015), Royal Netherlands Academy of Arts and Sciences, Amsterdam, November 16-17<sup>th</sup>, 2009.
  - Debate on the Long-Term Future of the European Research Area (ERA), ESF, Strasbourg, November 19<sup>th</sup>, 2009.
  - General Assembly, ESF, Strasbourg, November 20<sup>th</sup>, 2009.
  - ESF Joint Round Table with Core Groups and Member Organisations on Grand Challenges and Interdisciplinarity: Opportunities for Member Organisations and ESF in the Developing European Research Area, Istanbul, Turkey, June 17-18<sup>th</sup>, 2010.
  - EASAC Council Meeting, Danish Royal Academy of Sciences and Arts, Copenhagen, June 16-17<sup>th</sup>, 2011.
  - ICSU 30<sup>th</sup> General Assembly, FAO (United Nations “Food and Agriculture Organization”), Rome, September 27-30<sup>th</sup>, 2011.
  - “Science and Society Day”, ICSU European National Members Group, National Academy of Lincei (Accademia Nazionale dei Lincei), Rome, September 26<sup>th</sup>, 2011.
  - EASAC 10<sup>th</sup> Anniversary Celebratory Meeting, Palace of the Academies, Brussels, November 7<sup>th</sup>, 2011.
- Member of the Organizing Committee of a few symposia of the Academy of Sciences of Lisbon (1980s).
  - Vice-Secretary-General of the Symposium on the " History and Development of Science in Portugal ( XXth Century )" (Academy of Sciences of Lisbon) (1989).
  - Coordinator of the colloquium on “Biology and Chemistry of Evolution” within the cycle of conferences on “The Darwinism,Two Hundred Years After” (Academy of Sciences of Lisbon) (2009).

#### **AT THE PORTUGUESE ELECTROCHEMICAL SOCIETY (and akin societies)**

- Co-founder and member of the Portuguese Electrochemical Society (since 1983).
- Co-founder of the international journal *Portugaliae Electrochimica Acta* (1983) and of the Library of the Portuguese Electrochemical Society.
- President of the Portuguese Electrochemical Society (1988-89, 1994-95, 2009-14).
- Vice-President of the Portuguese Electrochemical Society (1990-91).
- Secretary of the Portuguese Electrochemical Society (1983-87).
- Proponent/founder of the *Prize for Young Researcher in Electrochemistry*, of the Portuguese Electrochemical Society (2010).
- Proponent/founder of the *Portuguese Electrochemical Society Prize* (2012).
- Proponent (and representative of the Portuguese Electrochemical Society) for the establishment of *collaboration protocols* with the Spanish Royal Chemical Society (Specialized Group on Electrochemistry) (Valladolid 1989 and Tenerife 1990) and with the Mendeleev Chemical Society of Moscow (Electrochemistry Division) (Moscow, 1991).



- Chairman of the III National Meeting on Electrochemistry (Academy of Sciences of Lisbon) (1982).
- Chairman of the symposium on “New Trends in Molecular Electrochemistry” (Academy of Sciences of Lisbon) (2003).
- Chairman of the XII Meeting of the Portuguese Electrochemical Society (Academy of Sciences of Lisbon) (2003).
- Member of the Editorial Advisory Board of the Journal *Portugaliae Electrochimica Acta* (since 1998).
- Representative of the Portuguese Electrochemical Society at the session of the Working Party on Electrochemistry of the Federation of European Chemical Societies, held in Prague, 1990.
- Member of the Organizing Committees of the Meetings of the Portuguese Electrochemical Society (1984-91) and of the preceding National Electrochemical Meetings (1981-83).
- Member of the Scientific Committee of the XV Meeting of the Portuguese Electrochemical Society (Lisbon, 2008).
- Member of the Organizing and Scientific Committee of the XVI Meeting of the Portuguese Electrochemical Society (XII Iberian Meeting) (Lisbon, 2010).
- Member of the Organizing Committee of the XXXII Meeting of the Electrochemistry Group of the Spanish Royal Society (XIII Iberian Meeting) (Murcia, 2011).
- Member of the Organizing and Scientific Committee of the XVII Meeting of the Portuguese Electrochemical Society (XIV Iberian Meeting) (Funchal, 2012).
- Member of the Organizing Committee of the XXXIV Meeting of the Electrochemistry Group of the Spanish Royal Society (XV Iberian Meeting) (Valencia, 2013).
- Member of the Organizing and Scientific Committee of the XVIII Meeting of the Portuguese Electrochemical Society (Porto, 2013).
- Member of the Scientific Committee of the XIX Meeting of the Portuguese Electrochemical Society (XVI Iberian Meeting) (Aveiro, 2014).
- Member of the Organizing Committee of the “Electrochemistry Day”, Lisbon, 2011.
- Representative of the Portuguese Electrochemical Society at the General Assembly and at the Molecular Electrochemistry Division of the ISE (International Society of Electrochemistry), Nice, France, 2010.
- Member of the Scientific Committee of the XXIV Meeting of the Portuguese Chemical Society (Coimbra, 2015).
- Representative of the Portuguese Chemical Society at the Annual Meeting of the Organometallic Chemistry Division of the EuCheMS (European Association for Chemical and Molecular Sciences), Nurnberg, Germany, 2010
- Member of the Scientific Committee of the 1<sup>st</sup> Portuguese Young Chemists Meeting, Portuguese Chemical Society (Lisbon, 2008).

#### **AT INTERNATIONAL CONGRESSES (beyond those of the abovementioned institutions)**

- Chairman of the XXV International Conference on Organometallic Chemistry (Lisbon, 2012).
- Member of the International Advisory Boards (IAB) of the XVII, XXI-XXVI International Conferences on Organometallic Chemistry (ICOMC) (Munich, Germany, 1998; Vancouver,

- Canada, 2004; Saragoza, Spain, 2006; Rennes, France, 2008; Taipei, Taiwan, 2010; Lisbon, Portugal, 2012; Sapporo, 2014).
- Member of the International Advisory Board of the 19th International Symposium on Homogeneous Catalysis (ISHC) (Ottawa, 2014).
  - Member of the Planning Committee of the “Internat. Conferences on Coordination Chemistry” (ICCC 1984, 1986, 1988, 1990, 2014).
  - Organizer/Chair of the Thematic Symposium “Functionalization of Alkanes” at the 41<sup>st</sup> International Conference on Coordination Chemistry (ICCC) (Singapore, 2014)
  - Director of the NATO Advanced Research Workshop on "Molecular Electrochemistry of Inorganic, Bioinorganic and Organometallic Compounds" (Sintra Portugal, 1992) (Co-director: J. McCleverty).
  - Chairman of the symposium “New Trends in Molecular Electrochemistry” (Academy of Sciences of Lisbon, 2003).
  - Member of the Scientific Committees of the “Journées d' Électrochimie” 1989 (Montpellier, France) and 1991 (Brest, France).
  - Member of the Scientific Committee of the “IX Iberoamerican Congress on Electrochemistry” (Tenerife, 1990).
  - Member of the Scientific Committee (1<sup>st</sup>) and the International Advisory Boards (2<sup>nd</sup> - 10<sup>th</sup>) of the “International Schools of Organometallic Chemistry” (ISOC) (Camerino, Italy, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015).
  - Member of the Scientific Committee of the meeting on “Electrochemistry: Long- and Short-Lived Intermediates in Coordination and Organometallic Compounds” (Siena, Italy, 1998).
  - Member of the Scientific Committee of the 1<sup>st</sup> - 5<sup>th</sup> "Chianti Electrochemistry Meetings on Metal containing Molecules" (Siena, Italy, 2000, 2002, 2004, 2006 and 2008).
  - Member of the Scientific Committee of the “XV Congress of the Iberoamerican Electrochemical Society” (Évora, Portugal, 2002).
  - Member of the International Scientific Committee of the symposium “Organometallics and Catalysis” (Rennes, France, 1999).
  - Member of the Scientific and Organizing Committee of the “45<sup>th</sup> Annual Meeting of the International Society of Electrochemistry” (Porto, 1994).
  - Member of the Organizing Committee of the “26<sup>th</sup> Internat. Conference on Coordination Chemistry” (Porto, 1988).
  - Member of the Organizing Commissions of the 12<sup>th</sup> and the 13<sup>th</sup> “Summer Schools on Coordination Chemistry” (Karpacz, 1993, and Polanica-Zdrój, Poland, 1996, respectively).
  - Member of the International Organizing Committee of the 14<sup>th</sup> and 15<sup>th</sup> “Summer School on Coordination Chemistry” (Polanica – Zdrój, 1999 and Szklarska Poreba, 2004, Poland).
  - Member of the Organizing Committee of the “24<sup>th</sup> IUPAC Conference on Solution Chemistry” (Lisbon, 1995).
  - Member of the International Advisory Board of the 2<sup>nd</sup> and 3<sup>rd</sup> International Conferences on Progress in Inorganic and Organometallic Chemistry” (Polanica-Zdrój, Poland, 1997 and 2000).
  - Chairman of the 1<sup>st</sup> year AQUACHEM meeting (Academy of Sciences of Lisbon) (2005).

## EVALUATION ACTIVITIES AND COMMISSIONS

- Member of the Advisory Panel on the Advanced Study Institutes Programme (**NATO** Science Programme) (1995-98).
- Member of the Physical and Engineering Science and Technology (PST) Panel of the **NATO** Science Programme (1999).
- Member of the External Evaluation Commission of the Physical Sciences of the **Portuguese Universities** (Ministry of Science and Higher Education) (2002-04).
- Member of the Panel of External Experts assessing the Engineering's Chemical Processes Department of the **University of Padova**, Italy (2005).
- Member of the Evaluation Panel of the PhD theses of the PhD course on Chemical Sciences of the **University of Camerino** (2012).
- Member of the Juries of the Gulbenkian Science **Prize** 1994 (Basic Sciences) and 1995 (Applied and Technological Sciences) (as representative of the Academy of Sciences of Lisbon).
- Member of the Juries of the **prizes** of the Portuguese Electrochemical Society (since their creation, 2010).
- Member of the Juries of the **prizes** of the Portuguese Chemical Society (2014): Ferreira da Silva and Vicente Seabra.
- Member of the Jury of the Aboim Sande Lemos **Prize** (Biochemistry applied to nutrition) of the Academy of Sciences of Lisbon (1983).
- Referee for various other **prizes**, e.g., the Boa Esperança Prize on Science and Technology, 1991, 1993 and 1995 [National Board for Scientific and Technological Research (JNICT), Secretariat of State for Science and Technology], the VIII European Contest for Young Scientists, 1996 [EC Commission - Youth Foundation and JNICT (Portugal)], the "Academia Europaea" prizes (for young Russian scientists, 2006, 2009, 2013), and the Research Corporation (Science Awards).
- Member of the Juries of the Technical University (UTL) **Prizes**: Young Researchers Prizes (UTL/Deloitte and UTL/Caixa Geral de Depósitos), 2010; Scientific Prizes (UTL/Santander) 2011.
- Referee for **grants and projects** applications, e.g., at JNICT, PRAXIS XXI, Calouste Gulbenkian Foundation, Czech Academy of Sciences, Czech Science Foundation, Italian Ministry for Education University and Research (MIUR, Grant Review Committee), Israel Science Foundation.
- Referee for **book** proposals, e.g., at Wiley, Elsevier, and Springer.
- Referee for various scientific **journals**, e.g., *Chem. Rev.*, *Coord. Chem. Rev.*, *J. Am. Chem. Soc.*, *Angew. Chem.*, *Inorg. Chem.*, *Chem. Eur. J.*, *Eur. J. Inorg. Chem.*, *Eur. J. Org. Chem.*, *Crystal Growth & Design*, *Organometallics*, *Adv. Synth. Cat.*, *J. Cat.*, *J. Mol. Cat. A: Chem.*, *Cat. Today*, *J. Organometal. Chem.*, *New J. Chem.*, *Inorg. Chim. Acta*, *J. Med. Chem.*, *J. Biol. Inorg. Chem.*, *J. Bioinorg. Chem.*, *Inorg. Synth.*, *J. Electroanal. Chem.*, *Comptes Rendus*, *Polyhedron*, *Tetrahedron Letters*, *Coll. Czech. Chem. Commun.*, *Monatsch. Chem.*, *Portugaliae Electrochim. Acta.*, *J. Braz. Chem. Soc.*
- Member (in many cases also President) of numerous **academic Juries**, for admission and progression in academic careers or for PhD and MSc theses at various Portuguese and foreign Universities.

## EDITORIAL ACTIVITIES

- Member of the Editorial Advisory Board of the *ACS Catalysis* (2011, the year of foundation), *Inorganic Chemistry Communications* (since 2003), *Trends in Inorganic Chemistry* (since 2008), *Letters in Organic Chemistry* (2008-10) and *Portugaliae Electrochimiac Acta* (since 1998).
- Member of the International Editorial Board of the *Journal of the Chinese Institute of Engineers* (since 2011) and *Catalysts* (since 2010).
- Editor of **books**:
  - "Molecular Electrochemistry of Inorganic, Bioinorganic and Organometallic Compounds" (NATO Advanced Research Workshop), A.J.L. Pombeiro and J. McCleverty (eds.), NATO ASI Series, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1993.
  - "Trends in Molecular Electrochemistry", A.J.L. Pombeiro (ed.), C. Amatore (co-ed.), Marcel Dekker / Fontis Media, New York / Lausanne, 2004.
  - "Advances in Organometallic Chemistry and Catalysis" (*The Silver/Gold Jubilee ICOMC Celebratory Book*), J. Wiley & Sons, 2014 (ISBN: 9781118510148).
- Coordinator of the special *Inorg. Chim. Acta* issue to celebrate Prof. J.J.R. Fraústo da Silva's career (vol. 356, 2004).
- Member of the Commission for Publications/**Editions** of the Academy of Sciences of Lisbon (1981-2007).

## PROTOCOLS OF COOPERATION

Proponent of the following inter-university exchange and cooperation agreements for teaching and research:

- IST - St. Petersburg State University (2002);
- IST - University of Camerino, Italy (Dual Master course, 2009);
- Technical University of Lisbon - University of Camerino (2010);
- IST- Lomonosov Moscow State University of Fine Chemical Technology (2013);
- IST- Nesmeyanov Institute of Organoelement Compounds (INEOS, Moscow) (2013);
- Consortium of the institutions involved in the CATSUS PhD Program (IST, CQE, IBB, FCUL, ITQB/UNL, FCT/UNL, UC) (2014).

## OTHERS

- Invited Chair Professor at the National Taiwan University of Science and Technology (2007).
- Coordinator of the restructuring of the Centro de Química Estrutural (2013) and of its application to the FCT for evaluation and 2015-2020 pluriannual funding.
- Coordinator of an *ad hoc* commission towards the foundation of the Chemistry College of the University of Lisbon (2014).
- Member of the Directive Council of the Centro de Química Estrutural (since 2001).
- Director of the FCT PhD program on "Catalysis and Sustainability" (CATSUS) (since its beginning, 2014).

- Coordinator of the proposal to the FCT of that PhD Program (CATSUS) (2013).
- Coordinator of the Scientific Area of Synthesis, Molecular Structure and Chemical Analysis (Department of Chemical and Biological Engineering or Department of Chemical Engineering, IST) (2009-14).
- Member of the Scientific Commissions of the PhD and MSc courses on Chemistry (Department of Chemical and Biological Engineering or Department of Chemical Engineering, IST) (since 2009).
- Responsible for the Dual Master Program in Chemistry at the IST (IST-Univ. Camerino, since its creation, 2009).
- Coordinator of the PhD Programme on Chemistry (IST) (2000-03).
- Representative of the Inorganic Chemistry Department on the Coordination Commission of the School of Chemical Engineering (IST) (1981-84).
- Coordinator of the Inorganic Chemistry Department (IST) (1983-84).

## PRIZES

- Portuguese Electrochemical Society, 2015.
- “Madinabeitia-Lourenço prize” (International Hispano-Portuguese prize), Royal Spanish Chemical Society, 2013.
- Symposium “One Day on Organometallic Chemistry in honor of Armando J. L. Pombeiro”, University of Oviedo, 2014 (organized by the Group of Organometallic Compounds and Catalysis (COMORCA) of this University and by the Specialized Group of Organometallic Chemistry of the Royal Spanish Chemical Society).
- “Ferreira da Silva prize”, Portuguese Chemical Society, 2012.
- “Scientific prize”, awarded by the Technical University of Lisbon and the Santander-Totta Bank, 2007 (1<sup>st</sup> year awarded) [the highest ranked researcher, under productivity (publications in scientific journals) and scientific impact factor criteria, within the Environmental, Biochemical, Biotechnological, Biological, Biological Engineering, Chemical Engineering, Nanomateriais, Nanotechnology, Materials and Chemical Sciences].
- “Stimulus for Excellence” prize, awarded by the Foundation for Science and Technology (Ministry of Science and Higher Education), 2005.
- J. Heyrovský Centennial Medal (“J. Heyrovský Centennial Congress on Polarography”, Praga, 1990).
- “Dr. Mendonça Monteiro” prize, awarded by the University of Porto, 1969 (the highest ranked student in the Chemistry courses).
- Rotary Club (Oporto) scholar prize, 1965-66.

## MAIN RESEARCH AREAS AND METHODS

His research activities in the general fields of Coordination, Inorganic, Bioinorganic and Organometallic Chemistries, Catalysis and Electrochemistry have been developed within the following *areas* whose systematic study has been often *introduced* by him (his Group) into his research Centre:

- *Activation of small molecules* with biological, industrial or environmental interest or related ones (such as alkanes, alkynes, phosphalkynes, isocyanides, dinitrogen, nitriles, cyanamides, nitric oxide, oximes, olefins, azides, cyanates, etc.) by transition metal centers, and developing their application in *metal-mediated synthesis and catalysis*, namely by searching for mimetic systems of biological processes (e.g. catalysed by peroxidases, particulate methanemonooxygenase, nitrile hydratases and nitrogenases), alternatives for industrial processes and new types of molecular activation with significance in fine chemistry.

Within this general area, the following themes can be mentioned, generally aiming the establishment of *active systems under mild, environmentally tolerable and sustainable conditions*:

- *Catalytic functionalization of alkanes* (for the single-pot syntheses of added value compounds, e.g., alcohols, ketones, carboxylic acids, esters or organo-halides);
- *Catalytic aerobic oxidation of alcohols* to aldehydes and ketones;
- *Catalytic C-C coupling* (e.g., Suzuki-Miyaura, Heck, Sonogoshira types);
- *Catalytic C-C coupling of nitroaldol or Henry type*;
- *Metal-mediated synthesis of organo-nitrogen compounds* (e.g., oxadiazolines, oxadiazoles, carboxamides, acetylamides, imidoylamidines, iminoisindolinones, phthalimides, phthalocyanines, cyano-olefins or tetrazoles);
- *Resonance Assisted Hydrogen-bond (RAHB) promoted reactions* (e.g., isomerizations, activation to nucleophilic attack, liberation of ligands);
- *Polynuclear, supramolecular and polymeric assemblies, synthesized by self-assembly*, with interesting magnetic, sorption and/or catalytic properties; *crystal engineering of coordination compounds*;
- *Coordination and organometallic chemistries and catalysis in aqueous media*, by using new hydrosoluble catalysts;
- *High pressure catalysis and catalysis in supercritical fluid media*;
- *Bioinorganic and biological chemistries*, focusing on biomimetic catalytic systems, synthesis and toxicity evaluation of new metal complexes with anti-tumor activity, and identification of biological targets in the cells;
- *Molecular Electrochemistry* of coordination and organic compounds, namely towards applications in electrosynthesis, electrocatalysis and in mechanistic studies, as well as in the establishment of potential-structure relationships, and in the induction of chemical reactivity by electron-transfer.
- *Mechanisms* of fast chemical (proton transfer) or electrochemical reactions (in the above fields).
- *Theoretical studies* applied to the interpretation of the structure and reactivity, and search for the reaction mechanisms of coordination compounds.

For the purpose, various *techniques and methods* (with the acquisition of the corresponding required *instrumentation*) have been brought in the research Centre by himself and his Group, namely for:

- *catalysis under unconventional conditions*, such as, metal-free, solvent-free, microwave assisted, in supercritical fluid or in ionic liquids;
- *high pressure gas reactions and catalysis* (since 1999, with the cooperation of Prof. A. Palavra);

- *conventional* molecular *electrochemistry* (since 1980, *e.g.* cyclic voltammetry, controlled potential electrolysis and, more recently, electrocatalysis);
- *unconventional* molecular *electrochemistry* (since 1990, including the use of *ultramicroelectrodes* in fast voltammetry, the development and use of *digital simulation* methods in cyclic voltammetry and their application to mechanistic studies of electrode processes involving fast reactions induced by electron-transfer, in electrocatalysis, etc.);
- *stopped-flow spectrophotometry* (since 1990, applied to the kinetic investigation of fast reactions, *e.g.* protonations, in Coordination Chemistry);
- *mass spectrometry* (including fast atom bombardment, FAB-MS) and its coupling to gas-chromatography (GC-MS) (since 1990, applied to the identification of compounds, *e.g.* reaction products, and to the induction and monitoring of reactions in FAB conditions);
- *thermogravimetry* (since 2009);
- *microwave* promoted synthesis (since 2001);
- *catalysis in supercritical fluid* (since 2007, with the cooperation of Prof. A. Palavra).

The application of *digital simulation* to the *analysis of NMR spectra* as well as the extension of NMR spectrometry to various then less-common nuclei have also been introduced (since 1991 and 1997, respectively) into his research Centre by his Group.

#### *Scientific Specialities*

- Coordination chemistry of small molecules.
- Catalysis.
- Metal-mediated synthesis of organic compounds.
- Transition metal and organometallic chemistries in aqueous media.
- High pressure gas reactions.
- Reactions in supercritical fluid medium.
- Microwave assisted reactions.
- Self-assembly of polynuclear and supramolecular structures.
- Crystal structure design and growth (crystal engineering).
- Complexes with multiple metal-carbon bonds.
- Electrochemistry of complexes.
- Mechanisms of reactions.
- Multinuclear NMR spectrometry.
- Mass spectrometry.

#### **PROJECTS (under his responsibility)**

(FCT – Foundation for Science and Technology. ICCTI – Institute for the International Scientific and Technological Cooperation. JNICT - National Board for Scientific and Technological Research. CNR - National Research Council (Italy). CNRS - National Centre for Scientific and Technological Research (France). HMC - Human Capital and Mobility programme. POCTI – Operational Programme on Science, Technology and Innovation. PEDIP – Specific Programme for the Development of the Portuguese Industry).

- “Catalysis and Sustainability” (FCT PhD Programme, 24 PhD fellowships) (Programme Director) (since Jan., 2014) (1.209 million €).

- “Metal-mediated and Metal-catalyzed Conversions of Isocyanides”, Russian Science Foundation, Project for Creation and Development of International Groups (since August 2014) (Portuguese team leader. Coordinator: V. Yu Kukushikin).
- “Single-Pot Carboxylation of Alkanes under Mild Conditions”, (Project PTDC/QUI-QUI/102150/2008) (2010-13) (143 k€).
- “GC-MS”, [Programme PO 002 (Inovation and Scientific and Technological Research), MO 003 (Development of a Modern Network of R&D Institutions), Project 6811 (Consolidation of Scientific Re-equipment of S&T Institutions), sponsored by FCT, since 2010] (81.4 k€).
- “Coordination Chemistry and Molecular Electrochemistry, Synthesis and Catalysis”, Group V (Centro de Química Estrutural), FCT (since 2008).
- “Catalytic Carboxylation of Alkanes” (Project POCI/QUI/58821/2004, sponsored by the POCI 2010 Programme, FCT, 2005-07; project PPCDT/QUI/58821/2004, 2008-09) (73 k€).
- “Chemical Synthesis and Catalysis” (Project CONC-REEQ/543/2001, National Programme for Re-Equipping Science) (2005-09) (Coordinator) (205.5 k€).
- “Direct Conversion of Methane into Carboxylic Acid” (Project supported by a technology transfer agreement with Jiangsu SOPO Corp., since 2005) (80,000 USD).
- “Transition Metal Chemistry and Catalysis in Aqueous Media” [Project MRTN-CT-2003-503864, Human Resources and Mobility (HRM) Marie Curie Research Training Network (RTN)] (Portuguese team leader). Other participants: Prof. M. Peruzzini (Florence) (Coordinator), Prof. F. Joó (Debrecen, Hungary), Prof. O. Lev (Jerusalem), Prof. A. Lledós (Barcelone), Prof. J.-P. Majoral (Toulouse), Prof. R. Perutz (York), Prof. R. Poli (Dijon), Prof. A. Romerosa (Almería, Spain), Prof. E. Shubina (Moscow) and Prof. R. van Eldik (Erlangen, Germany) (2004-07) (budget for the Portuguese team: 184.9 k€).
- “Early-Late Multinuclear Metal Systems on Design and Development of New Materials” (NATO Collaborative Linkage Grant PST. CLG. 979289). Other participants: Prof. V. Yu. Kukushkin (St. Petersburg State University, Russia) and Prof. P. Sobota (Wroclaw University, Poland) (2003-06) (12 k€).
- “Metal-based Synthons with Pharmacological Significance” (Project POCTI/QUI/43415/2001, sponsored by the POCTI programme, FCT) (2002-05) (98.5 k€).
- “Coordination Chemistry and Molecular Electrochemistry”, Group V (Centro de Química Estrutural), FCT (2000-07).
- “Coordination and Reactivity of Organonitriles, Cyanamides and Derived Species” (sponsored jointly by ICCTI and the CNR, Italy). Co-responsibility: Prof. R.A. Michelin (University of Padova) (1999-2001).
- "Oxidation of Saturated Hydrocarbons" (Project PRAXIS/POCTI /2/2.1/QUI/193/94, sponsored by the PRAXIS XXI and the POCTI Programmes) (1998-2002).
- “The Chemistry of Platinum Group Metals with N-Donor Ligands: Structure-Reactivity and Structure-Biological Activity Relationships”. Co-responsibility: Prof. V. Yu Kukushkin (St. Petersburg State University, Russia) (since 1998).



- "Activation of Phosphaalkynes by Transition-Metal Centres" (sponsored by the CRUP / The British Council, Treaty of Windsor programme). Co-responsibility: Prof. J. Nixon (University of Sussex) (1997-99).
- "Chemical and Electrochemical Investigation of Some Transition Metal-Promoted Reactions of Alkynes, Diazoalkanes, Cyanamide and Derived Species" [sponsored jointly by ICCTI (JNICT) and the CNR, Italy]. Co-responsibility: Prof. R.A. Michelin (University of Padova) (1997-98).
- "Activation of Small Molecules", FCT / JNICT (1996-99).
- "Molecular Electrochemistry of Coordination Compounds", FCT / JNICT (1996-99).
- "Chemistry and Redox Properties of Palladium or Platinum Complexes with Multiple Bonded C, N-Donor Ligands" (sponsored jointly by JNICT and the CNR, Italy). Co-responsibility: Prof. R.A. Michelin (University of Padova) (1995-96).
- "Multiple Metal-Carbon Bond Species in Selective Processes" (Project ERBCHRXCT940501, Human Capital and Mobility EC Network) (participant in charge of the Portuguese team). Other participants: Prof. S. Maiorana (Milan) (Coordinator), Prof. P.H. Dixneuf (Rennes), Prof. K.H. Dötz (Bonn), Dr. J.M. Moreto (Barcelona), Prof. S. Thomas (London) and Prof. J. Gimeno (Oviedo) (1994-97).
- "Development of Mimetic Systems of Fundamental Biological Processes with Environmental and Economical Relevance" (Project PRAXIS/2/2.1/QUI/03/94, sponsored by the PRAXIS XXI Programme for Scientific and Technological Research) (1994-99).
- "Electrochemistry of Transition Metal Complexes" [project sponsored by INIC (1985-1992) or JNICT (1993-95)] .
- "Activation of Unsaturated Small Molecules by Palladium or Platinum Metal Centres, a Chemical and Electrochemical Investigation" (project sponsored jointly by JNICT and the CNR, Italy). Co-responsibility: Dr. R.A. Michelin (University of Padova) (1993-94).
- "Activation and Electrochemistry of Unsaturated Small Molecules of Biological or Industrial Significance – Nitric Oxide and Cyanamide" (Project STRDA/CEN/450/92, sponsored by the STRIDE Program, Measure A) (1992-95).
- "Mechanisms of the Activation of Metal-Ligand Bonds by Electrochemistry with Ultramicroelectrodes. Application to the Study of Model Reactions for the Activation of Small Molecules" (project sponsored jointly by INIC, JNICT and CNRS, France). Co-responsibility: Dr. C. Amatore (École Normale Supérieure, Paris) (1992-96).
- "Chemistry and Electrochemistry of Low-Valent Palladium and Platinum Complexes with Unsaturated C-N Ligands" (project sponsored jointly by INIC, JNICT and the CNR, Italy). Co-responsibility: Dr. R.A. Michelin (University of Padova) (1991-92).
- "Synthesis and Mechanistic Studies in Bioinorganic Chemistry" [sponsored by the CIENCIA (Science) Program, Sub-program III - Global Support to the Scientific and Technological System, Infrastructures for Research and Development, Measure M] (1990-97) (Coordinator).
- "Molecular Electrochemistry of Coordination Compounds - Application of Ultramicroelectrodes" (Project PMCT/C/CEN/339/90, sponsored by JNICT) (1990-94).

- "Investigation of the Mechanisms of Proton Transfer Reactions, in Coordination Compounds, by Stopped Flow Spectrophotometry" [project sponsored by the ICCTI (JNICT)/The British Council protocol]. Co-responsibility: Dr. R. Henderson (Nitrogen Fixation Laboratory, Norwich (1990-97)).
- "Chemistry and Electrochemistry of Coordination Compounds with Multiple Phosphorus-Carbon Bonds" (project sponsored by the CRUP/The British Council, Treaty of Windsor programme). Co-responsibility: Prof. J. Nixon (University of Sussex) (1989-92).
- "Low-Valent Transition Metal Carbene Complexes" (project sponsored jointly by INIC and the CNR, Italy). Co-responsibility: Dr. R.A. Michelin (University of Padova) (1989-90).
- "Chemical/Electrochemical Activation of Compounds with Unsaturated Triple Bonded Carbon" (project 87.47/QUI sponsored by JNICT under the Mobility Programme for S&T) (1988-90).
- "Application of Nitrogen Fixation Metal Sites in Homogeneous Catalysis. Reactions of Alkynes" [joint research programme ("acção integrada") with the Federal Republic of Germany sponsored by the CRUP and by the DAAD]. Co-responsibility: Prof. I. Ugi and Dr. R. Herrmann (University of Munich) (1987-89).
- "Coordination Chemistry of Dinitrogen and Related Molecules" [project sponsored by INIC (1985-1992) or JNICT (1993-95)] .
- "Studies on the Chemical and Electrochemical Properties of Small Molecules Activated by Nitrogen Fixation Metal Sites" (project no. 216.80.56 sponsored by JNICT, 1980-83).
- "The Preparation, Properties and Chemical Reactions of Isocyanide, Carbene and Carbyne Complexes of the Early Transition Metals" (project sponsored by the NATO research grant no. 1604). Co-responsibility: Dr. R.L. Richards (Unit of Nitrogen Fixation, Univ. Sussex) (1978-81).
- "Isocyanide and Nitrogen Fixation" (project sponsored by INIC) (1976-1984).

## TEACHING COURSES

(\* Under his responsibility. † Under his co-responsibility)

### UNDERGRADUATION

- “Chemistry Laboratories I”, 2010-11 ( 1<sup>st</sup> cycle, integrated MSc, Chem.Eng., Biolog. Eng., IST).
- “Chemistry Laboratories II”, 2010-11, 2013-14 (1<sup>st</sup> cycle, integrated MSc, Chem.Eng., Biolog. Eng., IST)
- “Organometallic Chemistry and Catalysis”\*, 2007-2009 (Chemistry course, 1<sup>st</sup> cycle, 3<sup>rd</sup> year, IST).
- “Organometallic Chemistry”\*, 2004-2007 (Chemistry course, 4<sup>th</sup> year, IST).
- "Inorganic Chemistry"\* , 1999-2009 (Chemistry course, 3<sup>rd</sup> or 2<sup>nd</sup> year, IST).
- "General Chemistry Laboratories I", 1997-present \* (Chemical Engineering, Chemistry and Biological Engineering courses, 1<sup>st</sup> year, IST).
- "Inorganic Chemistry I"\* , 1995-99 (Chemical Engineering course, 2<sup>nd</sup> year, IST)
- "Laboratory I" \* , 1994-97 (Chemical Engineering course, 1<sup>st</sup> year, IST).
- "Catalysis"† , 1990-94 (Chemical Engineering course, 4<sup>th</sup> year, IST).
- "Inorganic Chemistry II"\* , 1986-99 (Chemical Engineering course, 3<sup>rd</sup> year, IST IST).
- "Inorganic Chemistry", 1976-83 (Chemical Engineering course, 1<sup>st</sup> year, IST.).
- "Laboratories"† or "Laboratory Research Projects"† , 1976-present (Chemical Eng. course, 4<sup>th</sup> and 5<sup>th</sup> years, IST).
- "Laboratory Techniques"\* , 1976-93 (Chemical Engineering course, 1<sup>st</sup> year, IST).
- "Analytical Chemistry"\* , 1971-73 (Chemical Engineering course, 2<sup>nd</sup> year, IST).

### POST-GRADUATION

- Director of the PhD program on “Catalysis and Sustainability” (CATSUS), since its creation, 2014 (IST).
- “Homogeneous Catalysis”\* (various topics) within the CATSUS PhD Program (IST), since 2014.
- “Homogeneous Catalysis”\* , since 2005 (Multinational Master in Molecular Chemistry), 2003 and 2004 (DEA, Diplôme d’Etudes Approfondies, Multinational in Molecular Chemistry), *École Polytechnique*, Palaiseau, Paris, France.
- “Homogeneous Catalysis”\* and “Functionalization of Alkanes”\* , 2009 and 2010 (Erasmus Intensive Programme (IP) on “Advanced Catalysis and Organometallic Chemistry”, *University of Camerino*, Italy) (IST partner institution coordinator).
- “Homogeneous Catalysis: Topics of Industrial Significance”\* and “Functionalization of Alkanes” \* , 2012 and 2013, Lifelong Learning Programme, Erasmus Intensive Programme (IP) EUCHEME (“EUropean CHEmists for Energy, Materials and Environment”), *University of Camerino*, Italy (IST partner institution coordinator).

- “Catalysis and Catalytic Processes”, since 2007 (M.Sc. courses on Chemistry and on Chemical Engineering, 2<sup>nd</sup> cycle, IST).
- “Advanced Strategies of Synthesis”,<sup>†</sup> since 2010 (3<sup>rd</sup> cycle, Chemistry, IST).
- “Specialization (Advanced) Laboratories I”,<sup>†,\*</sup> since 2007 (M.Sc. course on Chemistry, 2<sup>nd</sup> cycle, IST).
- “Specialization (Advanced) Laboratories II”,\* 2008-2009 (M.Sc. course on Chemistry, 2<sup>nd</sup> cycle, IST).
- “Topics of Coordination Chemistry”,\* 2007 (*National Taiwan University of Science and Technology*, Taipei, Taiwan).
- “Molecular Electrochemistry, Electrocatalysis and Homogeneous Catalysis”\*, 2008 (XXVIII Chemistry Summer School, *Federal University of S. Carlos*, Brazil).
- "Current Topics in Coordination Chemistry"\* (course for Faculty members), within the themes of coordination chemistry of nitric oxide and related species, and of molecular electrochemistry of their complexes, Department of Chemistry, *University of La Laguna*, Tenerife, Spain, 1994.
- "Electrochemical Methods in Synthesis"\*, 1991-92 (M. Sc. course on Chemical Engineering/Applied Chemistry, IST).
- "Coordination Compounds in Pharmacology"\* [2 years research course within the Specific Programme for the Development of the Portuguese Industry (PEDIP programme), IST, 1991-93] .
- "Organometallic Chemistry"<sup>†</sup>, 1981-91 (M.Sc. courses on the Chemistry of Catalytic Processes and on Chemical Engineering/Applied Chemistry, IST).
- "Carbyne, Carbene and Isocyanide Complexes"\* (M.Sc.course on Organometallic Chemistry, 1981/82, *University of Sussex*, U.K.).

## RESEARCH TRAINING SUPERVISION

- 21 Ph.D. and 16 M.Sc. theses (degrees awarded),
- *ca.* 45 Doctorates (mostly foreign Post-doc. Fellows),
- *ca.* 45 Graduates or Undergraduates (*ca.* 35 foreign Ph.D., Marie Curie, Erasmus, FCT, etc. grant holders; beyond those whose Ph.D. or M.Sc. degree has already been granted).

## PH.D. THESES

- "Síntese, Reactividade e Estudos Electroquímicos de Complexos Diazóticos e Isonitrílicos de Rénio", Maria Fernanda N.N. Carvalho, I.S.T., 1987. Present professional position: auxiliary professor at a public University (IST)

- "Reactions of Alkynes at Dinitrogen Binding Sites", Neimat K. Kashef, Universidade de Sussex (U.K.), 1987 (co-supervision with Dr. R.L. Richards). Present professional position: employee at an enterprise (London)
- "Electroquímica e Química de Complexos Derivados da Activação de Alcinos, Fosfaalcinos on Isonitrilos", Maria Amélia N.D.A. Lemos, I.S.T., 1993. Present professional position: auxiliary professor at a public University (IST)
- "Química e Electroquímica Molecular de Complexos Derivados da Activação de Nitrilos, Metilenoamidas e Diazoalcanos", Maria de Fátima C. Guedes da Silva, I.S.T., 1993. Present professional position: associate professor at a private school (ULHT)
- "Activation of Nitric Oxide, Azide, Cyanate, Thiocyanate, Alkynes, Cyanamides, Isocyanides and Dihydrogen at Transition Metal Centres", Wang Yu, I.S.T., 1994. Present professional position: director of a private enterprise on advanced lithium-ion batteries (Farasis Energy, Inc.), USA
- "Complexos Fosfínicos de Ferro ou Molibdénio com Ligandos Nitrilos, Cianamidas ou Relacionáveis", Luísa Margarida D.R.S. Martins, I.S.T., 1996. Present professional position: adjunct professor at a public polytechnique institute (ISEL).
- "Complexos Diazenetos de Rénio", Maria Teresa A. Ribeiro Sá da Costa, I.S.T., 1996. Present professional position: teacher at a secondary level school
- "Compostos de Platina e Rénio com Ligandos Azotados e Sua Reactividade", Cristina M.P. Ferreira, I.S.T., 2001. Researcher at a public institute (Instituto Ricardo Jorge) (with Dr. M. F. C. Guedes da Silva).
- "Química de Coordenação de Alcinóis e Dinitrilos em Centros de Ferro(II)", Ana Isabel da Fonseca Venâncio, I.S.T., 2003.
- "Funcionalização de Alcanos e Aromáticos por Catalisadores de Vanádio(IV) e (V)", Patícia Matias Reis, I.S.T., 2003. Researcher at a private enterprise.
- "Activation of Cyanamides and Dinitrogen by Molybdenum and Tungsten Phosphinic Centres", Sónia M.P.R.M. Cunha (submitted in 2004, IST, but not defended on account of the candidate's death on the same year) (with Dr. M. F. C. Guedes da Silva).
- "Azole-Based Ruthenium Anticancer Drugs - Synthesis, Electrochemical Behaviour and Antiproliferative Activity", Erwin Reisner, University of Vienna, 2005 (co-supervision with Profs. B.K. Keppler, V.B. Arion and V.Yu. Kukushkin). Present professional position: principal investigator, University of Cambridge.
- "Estudos Mecanísticos de Electrocatálise de Redução de Halogenetos Orgânicos e de Oxidação de Álcoois, Tióis ou Polifenóis", Natércia C.Tomé Martins, IST, 2005 (with Dr. M. F. C. Guedes da Silva). Present professional position: Post-Doc researcher, University of Aveiro.
- "Química de Coordenação de Escorpionatos e Outros Ligandos Insaturados de Azoto em Centros de Rénio, Molibdénio ou Ferro", Elisabete C.B.A. Alegria, I.S.T., 2006. Present professional position: adjunct professor at a public polytechnique institute (ISEL).
- "Rhenium, Copper and Other Transition Metal Complexes towards Catalytic Oxidative Functionalization of Alkanes under Mild Conditions", Alexander M. Kirillov, I.S.T., 2006. Present professional position: auxiliary professor at a public university (IST).
- "Pt-mediated Coupling of Organonitriles with Simple and Bifunctional HO-nucleophiles: Synthetic and Structural Approaches", Konstantin V. Luzyanin, I.S.T., 2007 (co-supervision with Prof. V.Yu. Kukushkin). Present professional position: analytical services manager, University of Liverpool.

- "Single-pot Transformation of Alkanes into Carboxylic Acids Catalyzed by Transition Metal Centres under Mild Conditions", Marina V. Kirillova, I.S.T., 2007. Present professional position: Post-Doc researcher at IST.
- "New copper(II) Coordination Compounds with N,O- and N,N-ligands, Their Application in Oxidation Catalysis and in Metal-mediated Synthesis of Triazapentadienes and Pyrimidines", Yauhen Karabach, I.S.T., 2010. Present professional position: Post-Doc researcher at IST.
- "Nitrogen- and Oxygen-based Chelating Ligands: Tris(pyrazolyl)methane and Salicylamidate Ligands", Ricardo Wanke, IST, 2010. Present professional position: Post-Doc researcher at IST.
- "Bioinspired Iron and Copper Catalyzed Oxidations and Reactions in Supercritical Carbon Dioxide", Ricardo J. R. Fernandes, IST, 2011. Present professional position: employee at a private enterprise (Luxembourg)
- "New Scorpionate Transition Metal Complexes and their Applications in Oxidation Catalytic Systems", Telma F. S. Silva, 2012 (co-supervisor; supervisor: Dr. Luísa Martins). Present professional position: technician at a public polytechnic institute (ISEL).

#### M.Sc. THESES

- "Some Reactions of Hydrido-Complexes of Molybdenum and Tungsten", Neimat K. Kashef, Universidade de Sussex (U.K.), 1982 (co-supervision with Dr. R.L. Richards).
- "Síntese e Estudo Electroquímico de Complexos Isonitrílicos e de Diazo, de Ferro(II)", Maria Amélia N.D.A. Lemos, I.S.T., 1985.
- "Estudo Electroquímico das Propriedades Redox de Ferrocenos Substituídos e Redução Electrocatalítica de Halogenetos Orgânicos por Complexos de Molibdénio, trans-[MoX<sub>2</sub>(dppe)<sub>2</sub>] (X=Br,I)", Maria Emília N.P.R.A. Silva, I.S.T., 1985.
- "Activação Química e Electroquímica de Nitrilos ou Isonitrilos por Centros Metálicos de Molibdénio-Enxofre e de Ferro-Fosfina", Sílvia S.P. Almeida, I.S.T., 1986.
- "Estudo Químico e Electroquímico da Reactividade de Nitrilos em Centros Fosfínicos de Molibdénio", Maria de Fátima D.S. Borrego, I.S.T., 1989.
- "Síntese e Electroquímica de Complexos Nitrílicos de Rénio(I)", Maria de Fátima C.G. Silva, I.S.T., 1989.
- "Estudo Electroquímico de Compostos de Paládio(II) ou Platina(II) e de Derivados do Ferroceno", Tânia Jacometo de Castilho, I.S.T., 1990.
- "Electroquímica de Complexos com Ligandos de Azoto Insaturado", Isabel Luísa Ferreira Machado, I.S.T., 1994 (with Dr. M. F. C. Guedes da Silva).
- "Complexos de Platina ou Paládio: Reacções com Compostos Diazo e Comportamento Electroquímico de Complexos de Cianamidas", Maria Estela Silva Dória, I.S.T., 1995 (with Dr. M. F. C. Guedes da Silva).

- “Synthesis and Characterisation of Potential Tumour-Inhibiting Ruthenium Azole-Based Complexes”, Erwin Reisner, Universidade de Viena, 2002 (co-supervision with Profs. B.K. Keppler, V. Arion and V. Yu. Kukushkin).
- “Complexos de Rénio com Ligandos Solúveis em Água. Aplicação em Catálise”, Gonçalo José de Oliveira Correia Lopes, ISEL, 2008 (co-supervision; supervision by Dr. L.M.D.R.S. Martins)
- “Synthesis of Copper(II) and Nickel(II) Coordination Compounds with N,O ligands”, Rui P. R. Carvalho, IST, 2010 (co-supervisor: Y. Y. Karabach).
- “Synthesis, characterization and catalytic properties of new scorpionate complexes”, Bruno G. M. Rocha, IST, 2010.
- “Synthesis and Characterization of Metal Complexes of Arylhydrazones of Barbituric Acid”, Marco Glucini, Dual Master, IST/University of Camerino, 2012 (other supervisors: Fabio Marchetti, Claudio Pettinari; co-supervisor: Kamran Mahmudov).
- "Synthesis of Palladium aminocarbene complexes and their application as catalysts in Suzuki-Miyaura cross-coupling reaction", Rogério Chay, IST, 2012 (co-supervision; supervision by Dr. K. Luzyanin)
- “Electrochemical Characterization of  $K_3[Mn(CN)_6]$  and Related Matallates”, Marco Renzi, Dual Master, IST/University of Camerino, 2013 (co-supervisor; supervisor: Prof. Silvia Zamponi; other co-supervisor: Prof. Mario Berrettoni).
- “Sulfo-functionalized Arylhydrazones of Active Methylene Compounds as Promising Ligands for Inorganic Synthesis”, Alice Ribera, Dual Master, IST/University of Camerino, 2014 (co-supervision; supervisors: Dr. Kamran Mahmudov, Prof. F. Marchetti; another co-supervisor: Prof. C. Pettinari).

#### **CURRENT PHD STUDENTS**

- Sabina Wieczorek (FCT grant holder) (IST; co-supervisor: Dr. A. Kirillov)
- Tetiana Anisimova (FCT grant holder) (IST; co-supervisor: Dr. K. Luzyanin).
- Bruno Gonçalo (project grant holder, IST; CATSUS PhD Program) (supervisor: Dr. M. F. Guedes da Silva).
- Rogério Chay (FCT grant holder) (IST; co-supervisor: Dr. K. Luzyanin).
- Nuno Martins (CATSUS PhD Program; co-supervisors: Dr. L. Martins, Dr. K. Mahmudov).
- Gonçalo Tiago (CATSUS PhD Program; supervisors: Dr. A.P. Ribeiro, Dr. K. Mahmudov, Dr. M. F. Guedes da Silva).
- Abdallah Mahmoud (CATSUS PhD Program; supervisor: Dr. M. F. Guedes da Silva; another co-supervisor: Dr. M.J. Calvete).
- Sergiy Lyubchyk (Trans-European Mobility Project on Education for Sustainable Development (TEMPO), Erasmus Mundus Program of the European Union) (co-supervisor; supervisor: Dr. A. Charmier).

#### **POS-DOCS (LONG TERM PERIODS)**

- Dr. Rudolf Herrmann (Univ. Munchen), NATO grant holder, 1981-82 (1 year), and research grant holder from EC (Human Capital and Mobility programme), 1997-98 (6 months).
- Prof. George Kalatzis (Univ. Athens, sabbatic license), 1993-94 (*ca.* 1 year).

- Dr. Maria de Fátima C. Guedes da Silva (JNICT and PRAXIS XXI grant holder, 1993-96; Associate Professor of ULHT, 1996-present) (research member at CQE).
- Dr. Wang Yu (PEDIP, STRIDE, etc.), 1994 (*ca.* 5 months).
- Dr. Simon Rumble (Univ. Bath), Royal Society/Academy of Sciences of Lisbon grant holder (1994-95) (1 year).
- Dr. Annette Limberg (Max Planck Mülheim Institut), grant holder from EC (Human Capital and Mobility programme, "Multiple Metal-Carbon Bond Species in Selective Processes"), 1995 (1 year).
- Dr. Mohamed Meidine (Univ. Sussex), grant holder from EC (Human Capital and Mobility programme, "Multiple Metal-Carbon Bond Species in Selective Processes", 1996), and Pos-Doc grant holder (PRAXIS XXI, 1997-98) (total of 2 years).
- Dr. Luísa M.D.R.S. Martins (Adjunt Professor at ISEL), 1996-present (research member at CQE).
- Dr. Gabriele Sabine Wagner (Univ. Munchen), Pos-Doc grant holder (PRAXIS XXI), 1997-2000 (3 years).
- Dr. Lei Zhang, Pos-Doc grant holder (PRAXIS XXI), 1998 (1 year).
- Dr. Ji-Quan Wang, Pos-Doc grant holder (PRAXIS XXI), 1998 (*ca.* 7 months).
- Prof. Dmitrii A. Garnovskii (State Rostov Univ., Russian Federation), Pos-Doc grant holder (PRAXIS XXI), 1998-2004 (2 years).
- Dr. Maxim L. Kuznetsov (Pedagogical State Univ., Moscow), Pos-Doc grant holder (PRAXIS XXI), 1998-99 (6 months), 2000-2008; Mach 2013-
- Dr. Maximilian Kopylovich (Bielorrussia State Technological Univ., Minsk), Pos-Doc grant holder (PRAXIS XXI), 1999-2008.
- Dr. De Gao (Hunan Univ., China), Pos-Doc grant holder (PRAXIS XXI), 1999-2000 (6 months).
- Prof. Qingshan Li (Shanxi Medical Univ., China), Pos-Doc grant holder (PRAXIS XXI), 2000-2001 (1 year).
- Dr Adília Charmier (Associate Prof., ULHT), 2001-present (research member at CQE).
- Prof. Stanislav Selivanov (S. Petersburg State Univ., Russian Federation), grant holder of the "Outreach" programme (NATO, INVOTAN / ICCTI Commission), 2002 (3 months).
- Dr. Nadejda Bokatch (S. Petersburg State Univ., Russian Federation), grant holder (POCTI programme), 2003-04; 2011 (1 month) and 2012 (1 month) (grant holder, "Exchange of Young Scientists" programme) (supervisor: Dr. K. Luzyanine).
- Dr. Mishra Gopal (Indian Technological Institute), grant holder (FCT), 2005-2008 (3 years).
- Dr. Parimala Sowmia Narayann (Madras Univ., India), grant holder (FCT), 2005-2006 (with Dr. M.F.C. Guedes da Silva) (18 months).
- Dr. Jamal Lasri (Jaume I Univ.e, Castellón, Spain), grant holder (FCT), 2005-2008 (with Dr. A. Charmier).
- Dr. Suman Mukhopadhyay (Indian Association for the Cultivation of Science, Jadavpur, India), grant holder (FCT), 2006-2010 (with Dr. M F. C. Guedes Silva and Dr. A. Charmier).
- Dr. Zhen Ma (Fujian Institute of Research on the Structure of Matter, China), grant holder (FCT), 2006-present (with Dr. M.F.C. Guedes da Silva).
- Dr. Laurent Benisvy (Leiden Institute of Chemistry, Holanda), grant holder ("Experienced Researcher") from AQUACHEM, "Marie Curie Research Training Network", 2007 (10,5 months).



- Dr. Piotr Smolenski (Wroclaw Univ., Poland), grant holder (FCT), 2005-2008 (3 years).
- Dr. Malgorzata Gajewska (Universidade de Wroclaw, Polónia), grant holder (FCT), 2007-2010 (3 years) (with Dr. M.F.C. Guedes da Silva).
- Dr. Alexander M. Kirillov, grant holder (FCT), 2006-2008.
- Dr. Konstantin V. Luzyanin, grant holder (FCT), 2007-2009.
- Dr. Tatiana MacLeod (S. Paulo Univ., Brasil), researcher (3 months, 2008), grant holder (2 months, 2008-09, project PPCT/QUI/58821/2004) and FCT, (2009-2012).
- Dr. Pawel Figiel (Wroclaw Univ., Poland), grant holder (FCT), 2008-2010 (26 months).
- Dr. Grzegorz Gajewski, grant holder (2 months, 2009, project PPCT/QUI/58821/2004).
- Dr. Xianmei Shang (Tongji School of Pharmacy, Huazhong University of Science and Technology, China), grant holder (FCT), 16 months, May 2009 – August 2010 (with Dr. M.F.C. Guedes da Silva).
- Dr. Kamran Mahmudov (Baku State Univ., Azerbaijan), grant holder (FCT), January 2009 – present.
- Dr. Dmytro Nesterov (Taras Shevchenko National Univ., Kiev, Ucraina), grant holder (FCT), Feb 2009 – present.
- Dr. Oksana Nesterova (Taras Shevchenko National Univ., Kiev, Ucraina), grant holder (FCT), Oct. 2010 – present.
- Dr. Archana Mizar (Northeastern Hill Univ., Shillong, India), grant holder (FCT), April 2010 – May 2013.
- Dr. Sanghamitra Mukherjee (Jadavpur Univ., India), grant holder (FCT), Dec. 2010 – present.
- Dr. Samik Gupta (Calcuta Univ., India), grant holder (FCT), Feb. 2011 – end 2012.
- Dr. Manas Sutradhar, Octob. 2011-present (project PTDC/QUI-QUI/102150/2008)
- Dr. Swapan Das, grant holder (FCT), Sept. 2011- Aug. 2012 (1 year).
- Dr. Kuntal Pal, grant holder (FCT), 2012 (7 months).
- Dr. Anirban Karmakar (Chalmers University of Technology, Gotemburgo, Sweden), grant holder (FCT), July 2012-present.
- Dr. Susanta Hazra (Calcuta Univ., India), Aug. 2012-present.
- Dr. Anbu Sellamuthu (Indian Institute of Science, Bangalore, Karnataka), grant holder (FCT), Sept. 2012-present
- Dr. Ivan Eliseev (Prof. Auxiliar, S.Petersburgo State Univ.), 2012 (1 month) (supervisor: Dr. K. Luzyanin).
- Dr. Eduard E. Karslyan (A.N. Nesmeyanov Institute of Organoelement Compounds, INEOS, Moscow, Russian Federation), grant holder (project PTDC/QUI-QUI/102150/2008), June - Novembre 2012 (6 months)
- Dr. Mikhail Vinogradov (A.N. Nesmeyanov Institute of Organoelement Compounds, INEOS, Moscow, Russian Federation), grant holder (project PTDC/QUI-QUI/102150/2008), Jan.-June 2013 (6 months)
- Dr. Agnieszka Krogul (Univ. Warsaw), grant holder (project “The Modern University”, co-financed by the European Social Fund under the Human Capital Operational Programme), May-June 2013 (2 weeks).
- Dr. Ana Paula Ribeiro, grant holder (FCT), June 1<sup>st</sup>, 2013 - present
- Dr. Anup Paul, grant holder (FCT), December 15<sup>th</sup>, 2013 – present (with Dr. M F. C. Guedes da Silva).
- Dr. Atash Gurbanov, Baku State Univ., Azerbaijan, July 1<sup>st</sup> - September 30<sup>th</sup>, 2014 (3 months)

(superisor: Dr. Kamran Mahmudov).

- Dr. Ravan Rahimov, Baku State Univ., Azerbaijan, August 1<sup>st</sup> - September 1<sup>st</sup>, 2014 (1 month) (superisor: Dr. Kamran Mahmudov).
- Dr. Luís Frijia, grant holder (FCT), Febr. 2015- present (coordinator: Dr. M. Kopylovich).

#### **FOREIGN STUDENTS WITHIN ERASMUS/SOCRATES OR MARIE CURIE RESEARCH TRAINING AND MOBILITY PROGRAMS, AND VARIOUS PROJECTS**

- Katarzyna Sztajnowska (Wroclaw Univ., Poland), 1999 (2 months) (Erasmus grant holder).
- Iwona Osinska (Wroclaw Univ., Poland), 1999 (3 months) (Erasmus grant holder).
- Silvia Mazzega Sbovata (Padova Univ., Italy), 2000 (5 months) (Erasmus grant holder), 2004-05 (7 months) (PhD. student, Padova Univ.) (“Early Stage Researcher”, AQUACHEM, “Marie Curie Research Training Network” grant holder).
- Lic. Nadejda Bokatch (S. Petersburg State Univ., Russian Federation), 2000 (3 months), 2001 (9 months), 2002 (5 months) (CQE grant holder).
- Lic. Pawel Figiel (Wroclaw Univ., Poland), 2000 (2 months) (Erasmus grant holder)
- Konstantin V. Luzyanin (S. Petersburg State Univ., Russian Federation), 2001 (3 months), 2002 (5 months) grant holder, CQE.
- Lic. Erwin Reisner (MSc student, Univ. Viena), 2002 (4 months).
- Marcin Niznik (Univ. Wroclaw, Poland), 2002-03 (5 months) (Socrates grant holder).
- Lic. Marina Kirillova (Bielorrussia Technological State Univ.), 2002-03 (9 months) grant holder, CQE.
- Anatoli Khripoun (S. Petersburg State Univ., Russian Federation), 2002 (3 months), 2004 (5 months) grant holder, CQE.
- Lic. Enmanuel B. Ramos (PhD student, Univ. of Valladolid, Spain), 2003 (3 months).
- Lic. Michal Kobylka (PhD student, Univ. Wroclaw, Poland), 2004 (1 month) (NATO grant holder).
- Lic<sup>a</sup> Ekaterina Tronova (S. Petersburg State Univ., Russian Federation), 2004-05 (8 months) (project POCTI/QUI/43415/2001).
- Lic. Jenia Karabach (Bielorrussia Technological State Univ.), 2005 (6 + 3,5 months) (“Early Stage Researcher” grant holder, projects AQUACHEM, “Marie Curie Research Training Network”, and POCTI/QUI/43415/2001).
- Julia A. Golenetskaya (S. Petersburg State Univ., Russian Federation), 2005 (3,5 months).
- Lic. Paolo Sgarbossa (PhD student, Univ. Padova, Italy), 2006 (5 months) (“Early Stage Researcher” grant holder, project AQUACHEM, “Marie Curie Research Training Network”).
- Lic. Katrin Grunwald (Univ. Viena), 2006-07 (6 months) (“Early Stage Researcher” grant holder project AQUACHEM, “Marie Curie Research Training Network”).
- Lic. Riccardo Wanke (Univ. Milan), 2007 (6 months) (“Early Stage Researcher” grant holder, project AQUACHEM, “Marie Curie Research Training Network”).
- Lukasz Jaremko (Univ. Wroclaw, Poland), 2006 (4 months) (Erasmus).
- Monika Waredna (Univ. Wroclaw, Polónia), 2006 (4 months) (Erasmus).
- Lic. Chiara Dinoi (PhD student, Univ. Toulouse, France), 2007 (7,5 months) (“Early Stage Researcher” grant holder, project AQUACHEM, “Marie Curie Research Training Network”).
- Virginia Valderrey Berciano (Univ. Valladolid, Spain), 2007 (6 months) (Erasmus).
- Pavel Guschin (S. Petersburg State Univ., Russian Federation), 2007 (4 months) (CQE).

- Lic. Federica Garau (PhD student, Univ. Padova, Italy), 2007-08 (6 months) (Fundação Aldo Gini grant holder), 2009 (6 months)
- Lic. Tatiana MacLeod (PhD student, Univ. São Paulo, Brasil), 2008 (1 month); (project PPCDT/QUI/58821/2004), 2008-09 (2 months).
- Lic. Adele Cherquetella (PhD student, Univ. Camerino, Italy), 2008 (6 months) (Erasmus).
- Alexander Tshovrebov (S. Petersburg State Univ., Russian Federation), 2008 (6 meses) e 2009 (5 meses) (initiation research grant holder, project PPCDT/QUI/58821/2004).
- Stefano Lancianesi (Univ. Camerino), 2008-09 (6 months) (Erasmus)
- Maria José Fernández Rodríguez (PhD student, Univ. Murcia), 2009 (3 months) (with Dr. J. Lasri).
- Elena Valishina (Moscow State University of Fine Chemical Technologies, Rússia), 2009-10 (6 months), CQE), 2012 (9 months) (with Dr. K. Luzyanine).
- Malgorzata Filipowicz (Univ. Wroclaw, Poland), 2010 (3 months) (Erasmus) (with Dr. A. Kirillov).
- Agnieszka Lis (Univ. Wroclaw, Poland), 2010 (3 months) (Erasmus).
- Sabina Wieczorek (Univ. Wroclaw, Poland), 2010-2011 (3 months) (with Dr. A. Kirillov).
- Mikhail Kinzhalov (S. Petersburg State Univ., Russian Federation), 2014 (1 month), 2011 (3 months) (“Exchange of Young Scientists” grant holder, from his Univ.), 2012 (7 months) (with Dr. K. Luzyanine).
- Carine Tuong (Univ. Pierre et Marie Curie, Paris), 2011 (1 month) (“Internship Program of French Students” grant holder from her Univ.) (supervisor: Dr. K. Luzyanine).
- Tetiana Anisimova (S. Petersburg State Univ., Russian Federation), 2011 (6 months) (project PTDC/QUI-QUI/098760/2008) (supervisor: Dr. K. Luzyanine).
- Raja Jlassi (Univ. Sfax, Tunisia), PhD student, 2011 (3 months) (Transnational Cooperation Agreement Portugal-Tunisia) (with Dr. Max Kopylovch, Dr. Kamran Mahmudov), 2015 (3 months) (with Dr. A.P. Ribeiro).
- Eva Faliszewska (Univ. Wroclaw, Poland), 2011 (3 months) (Erasmus) (with Dr. Max Kopylovch, Dr. Kamran Mahmudov).
- Karolina Ptak (Univ. Wroclaw, Poland), 2010 (3 months) (Erasmus) (with Dr. Max Kopylovch, Dr. Kamran Mahmudov).
- Andrei S. Kritchenkov (S. Petersburg State Univ., Russian Federation), 2012 (2 months) (with Dr. K. Luzyanine).
- Nikita V. Shvydkiy (Lomonosov Moscow State University), (project PTDC/QUI-QUI/102150/2008), June –Nov. 2012 (6 months)
- Anna Voronina (Lomonosov Moscow State University of Fine Chemical Technologies) (project PTDC/QUI-QUI/102150/2008), Jan.–June 2013 (6 months)
- Alexander Novikov (Moscow Pedagogical State University, 6 months, 2012) (with Dr. Maxim Kuznetsov)
- Felix Bacher (University of Vienna), (Project PTDC/EQU-EQU/122025/2010), March-Sept., 7 months, 2013 (with Dr. Luisa Martins).
- Jessica Palmucci (University of Camerino), PhD student (secondment), Oct. 2013 – May 2014 (6 months) (with Dr. K. Mahmudov).
- Alice Ribera (University of Camerino), MSc student (Dual Master, IST-Univ. Camerino), Jan. 2014 – June 2014 (6 months) (with Dr. K. Mahmudov).

- Aleksandra Zatajska (University of Wroclaw, Poland), PhD student (secondment), May-July 2014.
- Sara Dias (Instituto Superior Técnico), Febr. 2014-June 2015 (with Dr. Ana P. Ribeiro and Dr. Elisabete Alegria).
- Jiawei Wang (University of Madeira), MSc student, Sept. 2014-June 2015 (with Dr. Luisa Martins and Dr. João Rodrigues).
- Marta Mendes (Instituto Superior de Engenharia de Lisboa, ISEL), MSc student, Sept. 2014-June 2015 (with Dr. Elisabete Alegria and Dr. Ana P. Ribeiro)
- Robbe Verweken (University of Antwerp), MSc student, Febr.-June 2015 (with Dr. Luisa Martins).
- Elisa Spada (University of Padova), MSc student, Febr.-August 2015 (with Dr. Ana P. Ribeiro)

#### **POST-GRADUATE STUDENTS WITHIN PEDIP COURSE (1991-93)**

- Elsa M. Perrot Branco (with Dr. M. F. C. Guedes da Silva).
- Luciana M.G. Costa Branco (with Dr. M. F. N. N. Carvalho).
- Tong Yu-Ying (with Dr. M. F. C. Guedes da Silva).

#### **OTHER GRANT HOLDERS (PORTUGUESE)**

- Elisabete Clara Bastos (ISEL), 1997 (3 months) (PRODEP).
- Lic. Filipa Delgado Siopa, 2004 (6.5 months) (project POCTI/QUI/43415/2001).
- Michell Rosamonte (IST), 2008 (8 months) (grant holder, UTL / Santander Totta Prize), 2008-09 (12 months).
- Rui Carvalho (IST), 2008 (8 months) (grant holder, UTL / Santander Totta Prize), 2008, (3 months) (project PPCDT/QUI/58821/2004), 2009 (12 months) (CQE).
- Rogério Seong Chay, 2008-09 (12 months) (CQE).
- Bruno Gonçalo Martins Rocha, 2008-09 (12 months) (CQE).
- Raquel Oliveira, 2012 (1 month) (Univ. Minho).
- Filipa Teixeira, 2013-14 (12 months) (grant holder, FCT) (with Dr. M. Kuznetsov)

#### **FOREIGN INVITED SCIENTISTS (LONG TERM PERIODS)**

- Prof. Vadim Kukushkin (St. Petersburg State Univ., Russian Federation, sabbatical), "Outreach" grant holder (NATO, INVOTAN/J.N.I.C.T. commission), 1995-96 (*ca.* 3 months), PRAXIS XXI and POCTI, 1999-present (several periods, overall *ca.* 3 years).
- Prof. Georgiy B. Spul'pin (Semenov Institute of Chemical Physics, Russian Academy of Sciences, Moscow), since 2006 (several periods, 1.5-2 months/year).
- Dr. Lidia Shul'pina (INEOS, Moscow), since 2007 (several periods, 1.5-2 months/year).

## PUBLICATIONS

(When appropriate, in sections I and II, the name of the senior author to whom the correspondence should be addressed is denoted by an asterisk.)

### I – BOOKS, CONTRIBUTIONS IN BOOKS OR REVIEWS (usually invited ones)

- I.1 A.J.L. Pombeiro\*, "Isonitrile and Derived Carbyne Complexes of Molybdenum and Tungsten", D. Phil. Thesis, University of Sussex, U.K., 1976 (227 pages).
- I.2 A.J.L. Pombeiro\*, "Preparation, Structure, Bonding and Reactivity of Dinitrogen Complexes", Chapter 6, in "New Trends in the Chemistry of Nitrogen Fixation", J. Chatt, L.M. Câmara Pina and R.L. Richards (eds.), Academic Press, London, 1980, pp. 153-197; MIR Editions, 1983 (Russian translation).
- I.3 A.J.L. Pombeiro\*, "Reactions of Ligands Analogous to Dinitrogen on Dinitrogen Binding Sites", Chapter 10, in "New Trends in the Chemistry of Nitrogen Fixation", J. Chatt, L.M. Câmara Pina and R.L. Richards (eds.), Academic Press, London, 1980, pp. 249-274; MIR Editions, 1983 (Russian translation).
- I.4 A.J.L. Pombeiro\*, "Techniques and Unit Operations in Laboratory Chemistry", (in Portuguese), University Series, Calouste Gulbenkian Foundation, Lisbon, 1983 (1<sup>st</sup> edition), 1991 (2<sup>nd</sup> edition), 1998 (3<sup>rd</sup> edition), 2003 (4<sup>th</sup> edition) (1070 pages).
- I.5 A.J.L. Pombeiro\*, "Electrochemistry of Transition Metal Complexes", *Portugaliae Electrochimica Acta*, 1983, 1, 19-143.
- I.6 A.J.L. Pombeiro\*, "Properties of Transition Metal Centres in Nitrogen Fixation", *Rev. Port. Quím.*, 1984, 26, 30-60.
- I.7 A.J.L. Pombeiro\*, R.L. Richards, "Diisocyanide Complexes of Molybdenum(0) and Tungsten(0) and Derived Aminocarbyne Complexes", *Inorg. Synth.*, 1985, 23, 9-14.
- I.8 A.J.L. Pombeiro\*, "Alkynes — Versatile Reagents in Coordination Chemistry, Synthesis and Chemical Industry" (in Portuguese), *Técnica*, 1987, no. 1. 87, 2-24.
- I.9 A.J.L. Pombeiro\*, "Activation of Unsaturated C≡C and C≡N Bonds: Formation of Metal-Carbon Multiple Bonds", in "Coordination Chemistry and Catalysis", J.J. Ziolkowski (ed.), World Scientific Publishing Co., Singapore, 1988, pp. 100 -124.
- I.10 A.J.L. Pombeiro\*, "Reactions of Alkynes at Mononuclear Electron-Rich Transition Metal Centres", *J. Organomet. Chem.*, 1988, 358, 273-282 (25<sup>th</sup> anniversary celebratory issue). [http://dx.doi.org/10.1016/0022-328X\(88\)87083-9](http://dx.doi.org/10.1016/0022-328X(88)87083-9)
- I.11 A.J.L. Pombeiro "Carbene Complexes Derived from the Activation of Isocyanides and Alkynes by Electron-Rich Transition Metal Centres", in "Advances in Metal Carbene Chemistry" (NATO Advanced Research Workshop), U. Schubert (ed.), NATO ASI Series, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1989, pp. 79-99.
- I.12 A.J.L. Pombeiro\*, "Electrophilic β-Addition to Isocyanide, Cyanide and Alkyne-Derived Ligands", *Polyhedron*, 1989, 8, 1595-1600. [http://dx.doi.org/10.1016/S0277-5387\(00\)80602-6](http://dx.doi.org/10.1016/S0277-5387(00)80602-6)
- I.13 A.J.L. Pombeiro\*, R.L. Richards, " *trans* -Bis[1,2-ethanediylbis(diphenylphosphine)]bis(isocyanomethane)tungsten(0)", in "Reagents for Transition Metal Complex and Organometallic Synthesis" R.J. Angelici (ed.), *Inorg. Synth.* 1990, 28, 43-45.

- I.14 A.J.L. Pombeiro\*, R.L. Richards, "Reactions of Alkynes, Isocyanides and Cyanides at Dinitrogen-Binding Transition Metal Centres", *Coord. Chem. Rev.*, 1990, *104*, 13-38. [http://dx.doi.org/10.1016/0010-8545\(90\)80039-V](http://dx.doi.org/10.1016/0010-8545(90)80039-V)
- I.15 J.J.R. Fraústo da Silva, A.J.L. Pombeiro\*, "Cold Nuclear Fusion - the Fleischmann and Pons Electrochemical Route", in "Cold Nuclear Fusion - Analysis and Perspectives" (in Portuguese), Academy of Sciences of Lisbon, 1991, pp. 35-61.
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## II - RESEARCH PAPERS

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#### IV - DIDATIC WORKS

(See also book 1.4, invited lecture 30, and presentations at conferences 47, 154 and 212)

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- IV.2 A.J.L. Pombeiro\*, "Introduction to Laboratory Techniques" (in Portuguese), I.S.T., Lisbon, 1981 (329 pages).
- IV.3 A.J.L. Pombeiro\*, "Isocyanide Compounds" and "Carbyne Compounds", lecture notes presented at the M.Sc. course on "Organometallic Chemistry" (University of Sussex, U.K.), 1981/2 (included in IV.4) (67 hand written pages).
- IV.4 A.J.L. Pombeiro\*, "Organometallic Chemistry", lecture notes presented at the M.Sc. course on the "Chemistry of Catalytic Processes" (I.S.T., Lisbon), 1982/3 (in Portuguese) (340 hand written pages).
- IV.5 A.J.L. Pombeiro\*, "Metallo-Bioinorganic Chemistry", Inorganic Chemistry Laboratory (I.S.T.)/Complexo I, Lisbon, 1987 (in Portuguese) (148 pages).
- IV.6 A.J.L. Pombeiro\*, "Homogeneous Catalysis", lecture notes for the course on "Catalysis" (I.S.T., Lisbon), 1990 (in Portuguese) (45 hand written pages).
- IV.7 A.J.L. Pombeiro\*, "Industrial Organometallic Chemistry and Fine Chemistry – History, Tendencies and Prospects", lecture notes for the courses on "Organometallic Chemistry" (M.Sc. course on Chem. Eng./Applied Chemistry, I.S.T., Lisbon, 1989-91) and on "Coordination Compounds in Pharmacology" (PEDIP programme, I.S.T., Lisbon, 1991/92) (in Portuguese) (ca. 20 hand written pages, plus extracts from IV.4 and IV.5).
- IV.8 A.J.L. Pombeiro\*, "Electrosynthesis", lecture notes for the course on "Electrochemical Methods in Synthesis" (M.Sc. course on Chem.Eng./Applied Chemistry, I.S.T., Lisbon, 1991/92) (in Portuguese) (47 hand written pages).
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- IV.10 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Organometallic Complexes: Redox Properties and Activation by Electron Transfer", lecture notes for the "International School of Organometallic Chemistry", Camerino, Italy, 1997 (60 pages).
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- IV.12 A.J.L. Pombeiro\*, "Activation of Alkanes and Nitriles towards Metal-mediated Syntheses", lecture notes for the "International School of Organometallic Chemistry", Camerino, Italy, 2003 (65 pages presented in "power-point").
- IV.13 A.J.L. Pombeiro\*, "Topics of Coordination Chemistry", lecture notes for the National Taiwan University of Science and Technology, Taipei, Taiwan, 2007 (210 pages presented in "power-point").
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- IV.18 A.J.L.Pombeiro, M.F.C. Guedes da Silva, various modules within the "Homogeneous Catalysis" course of the CATSUS (Catalysis and Sustainability) PhD program, IST, 2014/15: introduction, basic concepts of coordination chemistry, bond and reactivity; various topics in catalysis: hydrocyanation, isomerization, C-C coupling, alkane functionalization, metal-mediated reactions of nitriles, cooperative and bifunctional catalysis (*ca.* 200 summary pages, "power-point").

**V - OTHER WORKS**

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- V.2 "By-Laws of the Portuguese Electrochemical Society" (project undertaken within the Foundation Commission of this society and approved by the General Assembly, 1984), *Portugaliae Electrochimica Acta*, 1989, 7, 395-406.
- V.3 A.J.L. Pombeiro\*, review of the "Bulletin of Electrochemistry", *Portugaliae Electrochimica Acta*, 1988, 6, 77-78.
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- V.5 A.J.L. Pombeiro\*, "Portuguese Electrochemical Society – Genesis and the First Lustrum", *Portugaliae Electrochimica Acta*, 1989, 7, 175-193 (celebratory issue – see V.4) (speech delivered at the celebratory session).
- V.6 A.J.L. Pombeiro\*, "Opening and Closing of the celebratory session of the 5<sup>th</sup> anniversary of the Portuguese Electrochemical Society", *Portugaliae Electrochimica Acta*, 1989, 7, 169-170 and 251 (celebratory issue - see V.4).
- V.7 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Coordination Compounds", *Portugaliae Electrochimica Acta*, 1989, 7, 333-338 (celebratory issue - see V.4) (abridged description of a research project).
- V.8 A.J.L. Pombeiro\*, "The Portuguese System of Science and Technology – Indicators, information and the Role of Some Institutions". Part I – "An Outline", *Memories of the Academy of Sciences of Lisbon* (Class of Sciences), 1991, XXXI, 553-581 (see V.105 e V.108).
- V.9 A.J.L. Pombeiro\*, "The Portuguese System of Science and Technology – Indicators, Information and the Role of Some Institutions". Part II – "Scientific Information and Evaluation in Portugal – The Role of Some Governmental and Scientific Institutions", *Memories of the Academy of Sciences of Lisbon* (Class of Sciences), 1991, XXXI, 583-600 (see V.104 e V.108).
- V.10 Invited interviews, in Russia, on the systems of Science and Technology in Portugal and in the U.S.S.R. (interviewer: Prof. Zori Todres) included in the following Sovietic publications: "Mendeleev Chemistry Journal", 1991, 36, no. 4; "Chemistry and Life", April, 1992, 16-17; "Radical" (Journal of the "Society for Distribution of Scientific Knowledges"), no. 41, October 23rd, 1991.
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- V.12 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Inorganic, Bioinorganic and Organometallic Compounds – NATO Advanced Research Workshop" (informative note), Boletim Informativo, Instituto Superior Técnico, 1992, no. 136, 20-21. "Molecular Electrochemistry of Inorganic, Bioinorganic and Organometallic Compounds", NATO Newsletter (Scientific Publications), 1993, no. 46, p. 4.



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- V.16 A.J.L. Pombeiro\*, "Scientific Research in Portugal – Current Situation and Perspectives", lecture notes presented (April 1997) at the Higher Course on Air War, Air Force High Studies Institute (ca. 90 pages) (updated annually until 2003).
- V.17 A.J.L. Pombeiro\*, "Professor José Pinto Peixoto", *Portugaliae Electrochimica Acta*, 1998, 16, 121-132.
- V.18 A.J.L. Pombeiro\*, "Introductory Remarks", *Book of Abstracts* ("New Trends in Molecular Electrochemistry and XII Meeting of the Portuguese Electrochemical Society"), 2003, p. iii-iv.
- V.19 A.J.L. Pombeiro\*, "Protagonists in Chemistry: Prof. João J.R. Fraústo da Silva", *Inorg. Chim. Acta*, 2003, 356, 1-5 (special issue dedicated to Prof. J.J.R. Fraústo da Silva). [http://dx.doi.org/10.1016/S0020-1693\(03\)00330-X](http://dx.doi.org/10.1016/S0020-1693(03)00330-X)
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- V.21 M. Toscano Rico, F. Dias Agudo, A.J.L. Pombeiro "Preface", in "Trends in Molecular Electrochemistry", A.J.L. Pombeiro (ed.) and C. Amatore (co-ed.), FontisMedia / Marcel Dekker, Lausanne / New York, 2004, pp. xiii-xvi.
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- V.23 A.J.L. Pombeiro, "Preface" to the book "Advances in Organometallic Chemistry and Catalysis" (The Silver/Gold Jubilee ICOMC Celebratory Book), A. J. L. Pombeiro (ed.), J.Wiley & Sons, 2014.
- V.24 A.J.L. Pombeiro, invited interview for *Química (Bulletin of the Portuguese Chemical Society)*, 2013, 131, 11-20.
- V.25 A.J.L. Pombeiro, invited interview for "Elsevier Author Profile", 2013: <http://www.elsevier.com/authors/authors-update/issue-4/about-the-author-prof.-armando-j.l.-pombeiro>

**INVITED LECTURES (PLENARY, KEYNOTE AND SESSION LECTURES) AT  
INTERNATIONAL CONFERENCES OR SYMPOSIA**

- 1 A.J.L. Pombeiro\*, "Complexes of Dinitrogen and Related Ligands. Reactivity", Symposium on "New Trends in the Chemistry of Nitrogen Fixation", Academy of Sciences of Lisbon, Lisbon, 1979 (see II.27).
- 2 A.J.L. Pombeiro\*, "Reactions of Electron Rich Metal Sites" (in Portuguese), Inorganic Chemistry Meeting, Portuguese Chemical Society, Complexo I, Instituto Superior Técnico, Lisbon, 1979.
- 3 A.J.L. Pombeiro\*, "Activation of Dinitrogen by Transition Metal Binding Sites" (in Portuguese), Nitrogen Fixation Meeting, Portuguese Chemical Society, Complexo I, Instituto Superior Técnico, Lisbon, 1979.
- 4 A.J.L. Pombeiro\*, "Isocyanides as Probes in the Study of the Reactivity of Dinitrogen and the Properties of its Binding Sites" (in Portuguese), Fifth National Chemical Meeting, Porto, 1982, CC2.
- 5 A.J.L. Pombeiro\*, "Electrochemistry of Transition Metal Complexes" (in Portuguese), Third National Electrochemical Meeting, Lisbon, 1982, S2.
- 6 A.J.L. Pombeiro\*, "Nitrogen Fixation by Chemical and Biological Methods" (in Portuguese), First Meeting on Chemical and Biological Conversion of Energy, Calouste Gulbenkian Foundation, Lisbon, 1982.
- 7 A.J.L. Pombeiro\*, "Chemistry of Alkynes and Isocyanides Activated by Dinitrogen-Binding Transition Metal Centres", Seminarium Kataliza 85, Karpacz, Institute of Chemistry, University of Wroclaw, Poland, 1985.
- 8 A.J.L. Pombeiro\*, "Activation of Unsaturated C≡C and C≡N Bonds: Formation of Metal-Carbon Multiple Bonds", 11<sup>th</sup> Summer School on Coordination Chemistry, Karpacz, Poland, 1987, P-7 (*Plenary lecture*).
- 9 A.J.L. Pombeiro\*, "Carbene Complexes Derived from the Activation of Isocyanides and Alkynes by Electron-Rich Transition Metal Centres", NATO Advanced Research Workshop on "Transition-Metal Carbene Complexes", Wildbad Kreuth, Federal Republic of Germany, 1988, L11 (*Key lecture*).
- 10 A.J.L. Pombeiro\*, "Redox Properties of Isocyanide, Carbyne and Carbene Complexes", Royal Society of Chemistry Autumn Meeting, Dalton Division: "Electrochemistry and Electron Transfer in Inorganic Chemistry", University of Birmingham, U.K., 1988.
- 11 A.J.L. Pombeiro\*, "Group VI and VII Transition Metal Complexes with Single, Double or Triple Metal-Carbon Bonds", IX Annual Meeting on Organometallic Chemistry, Spanish Royal Chemical Society (Organometallic Chemistry Division), Faculty of Chemistry, Oviedo, Spain, 1989 (*Plenary lecture*).
- 12 A.J.L. Pombeiro\*, "Redox Properties and Ligand Effects in Isocyanide and Alkyne-Derived Complexes with Electron-Rich Metal Centres", Journées d'Électrochimie 1989, Montpellier, France, 1989, CS 4-2.
- 13 A.J.L. Pombeiro\*, "Electrophilic  $\beta$ -Addition to Isocyanide, Cyanide and Alkyne-Derived Ligands", Internat. Conference on the Chemistry of the Early Transition Metals, University of Sussex, Brighton, U.K., 1989 (see I.12) (*Plenary lecture*).

- 14 A.J.L.Pombeiro\*, "Electron-Transfer Reactions of Complexes with Unsaturated Carbon or Nitrogen Ligands", XI Meeting of the Electrochemical Group of the Spanish Royal Chemical Society, Valladolid, Spain, 1989, CP-2 (*Plenary lecture*).
- 15 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Coordination Compounds", 4th Meeting of the Portuguese Electrochemical Society, Sintra/Estoril, 1989, P1, p. 17 (*Plenary lecture*).
- 16 A.J.L. Pombeiro\*, "Activation of Nitriles and Related Molecules by Transition-Metal Centres", Italian-Portuguese-Spanish Meeting in Inorganic Chemistry, Gandía, Spain, 1990, M3-4, p. 52 (*Invited lecture (micro-symposium)*).
- 17 A.J.L. Pombeiro\*, "Electrochemically Induced Interconversion of Unsaturated Carbon or Nitrogen Ligands and Redox Properties of Their Binding Metal Centres", J. Heyrovský Centennial Congress on Polarography, 41st Meeting of the Internat. Society of Electrochemistry, Prague, Czechoslovakia, 1990, Fr-MS15/1 (*Invited lecture (micro-symposium)*).
- 18 A.J.L. Pombeiro\*, "Chemistry and Electrochemistry of Coordination Compounds with Multiple M-C or M-N Bonds", special session at the congress on "Electrochemical Catalysis", Chernogolovka, Moscow, U.S.S.R., 1991.
- 19 A.J.L. Pombeiro\*, "Coordination Chemistry of Unsaturated Carbon, an *Unsaturated* Field of Research", 12<sup>th</sup> Meeting of the Portug. Chemical Society, Coimbra, 1991, p. 30.
- 20 A.J.L. Pombeiro\*, "Unprecedented Activation of Molecules with Unsaturated C, N or P – Their Coordination Chemistry and Molecular Electrochemistry" (in Portuguese), Half a Century of Chemistry in Porto – symposium on the occasion of Prof. João L.L.C.O. Cabral's retirement, Porto, 1991, C3, p. 6.
- 21 A.J.L. Pombeiro\*, "Scientific Information and Evaluation in Portugal – The Role of Some Governmental and Scientific Institutions", Informatics and the Science of Science (II All-Union Scientific Conference), Tambov, U.S.S.R., 1991, p. 3 (see V.9) (*Plenary lecture*).
- 22 A.J.L. Pombeiro\*, "The Portuguese System of Science and Technology, an Outline", Informatics and the Science of Science (II All-Union Scientific Conference), Tambov, U.S.S.R. , 1991, p. 4 (see V.8) (*Plenary lecture*).
- 23 A.J.L. Pombeiro\*, "Activation of Small Molecules by Transition Metal Centres and Molecular Electrochemistry of Their Complexes", Frontiers in Inorganic Chemistry, JNICT (National Board for Scientific and Technological Research)/National Science Foundation/FLAD (Luso-American Foundation for Development), Lisbon, 1992.
- 24 A.J.L. Pombeiro\*, "Electrochemical Behaviour of Complexes Derived from the Activation of Alkynes, Isocyanides and Nitriles", Molecular Electrochemistry of Inorganic, Bioinorganic and Organometallic Compounds (NATO Advanced Research Workshop), Sintra, Portugal, 1992, L19 (*Plenary lecture*).
- 25 A.J.L. Pombeiro\*, "Chemistry and Electrochemistry of Alkyne- and Isocyanide-Derived Carbyne Complexes of Rhenium, Molybdenum and Tungsten", Transition Metal Carbyne Complexes (NATO Advanced Research Workshop), Wildbad Kreuth, Germany, 1992, PL 2 (*Plenary lecture*).
- 26 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Complexes with Activated Isocyanide, Nitrile and Alkyne-Derived Ligands", 2<sup>nd</sup> Iberian Electrochemistry Meeting (XVI Meeting of the Electrochemistry Group of the Spanish Royal Chemical Society), Valencia, Spain, 1993, CP-3, p.13-14 (*Plenary lecture*).
- 27 A.J.L.Pombeiro\*, "Coordination Chemistry of Small Unsaturated-N Molecules at Electron-Rich Mononuclear Centres: Cyanamide, Organonitriles, Nitric Oxide and Related Species",

- 12<sup>th</sup> Summer School on Coordination Chemistry, Karpacz, Poland, 1993, L11, p. 23. IV (*Plenary lecture*).
- 28 A.J.L.Pombeiro\*, "Protonation and Dehydrogenation of Complexes with Small Unsaturated-Carbon or -Nitrogen Ligands: A Chemical and an Electrochemical Approach", Latin-American Inorganic Chemistry Meeting, Santiago de Compostela, Spain, 1993, LAICM2184S, p. 190 (*Plenary lecture*).
- 29 A.J.L. Pombeiro\*, "Electrochemically Induced Reactions of Hydride, Nitrile or Related Complexes", 45<sup>th</sup> Annual Meeting of the Internat. Society of Electrochemistry, Porto, Portugal, 1994, KIV-7.
- 30 A.J.L. Pombeiro\*, "Protonation or Deprotonation Reactions and Their Mechanisms at Low-Valent Transition Metal Phosphinic Complexes", 1<sup>st</sup> Internat. Conference on Progress in Inorganic and Organometallic Chemistry, Polanica Zdrój, Poland, 1994, L4, p. 16 (*Plenary lecture*).
- 31 A.J.L. Pombeiro\*, "Homogeneous Coordination Catalysis in the Curricula of the Graduate and Post-Graduate Chemical Engineering Courses" (in Portuguese), 2<sup>nd</sup> Meeting, Catalysis Division, Portuguese Chemical Society, Instituto Superior Técnico, Lisbon, Portugal, 1995, p. 28-29.
- 32 A.J.L. Pombeiro\*, "Molecular Electrochemistry in Coordination Chemistry: Metal-Ligand Bonds and Activation of Complexes by Electron-Transfer", 13<sup>th</sup> Summer School on Coordination Chemistry, Polanica-Zdrój, Poland, 1996, L23, p.35 (*Plenary lecture*).
- 33 M.F.C. Guedes da Silva, M.F.N.N. Carvalho, M.A.N.D.A. Lemos, A.J.L. Pombeiro\*, "Binding and Reactivity of Cyanide, Isocyanide and Aminocarbyne, CNH<sub>x</sub> (x = 0-2), at a Single Transition Metal Centre", 16<sup>th</sup> Conference on Coordination Chemistry, Smolenice, Slovakia, 1997, p. 61 (*Plenary lecture, presented by A.J.L.P.*)
- 34 A.J.L. Pombeiro\*, "Molecular Electrochemistry of Organometallic Complexes: Redox Properties and Activation by Electron-Transfer", International School of Organometallic Chemistry, Camerino, Italy, 1997, p. 29 (see IV.10) (*Plenary lecture*).
- 35 A.J.L. Pombeiro\*, "Organodiazene and Related Complexes of Rhenium", 2<sup>nd</sup> International Conference on Progress in Inorganic and Organometallic Chemistry, Polanica Zdrój, Poland, 1997, p. 24 (*Plenary lecture*).
- 36 A.J.L. Pombeiro\*, "Reactions of Alkynes and Phosphaalkynes at Electron-Rich Phosphinic Metal Centres", Organometallic Chemistry on the Eve of the 21<sup>st</sup> Century (INEOS 98 Workshop), Moscow, 1998, L48.
- 37 A.J.L. Pombeiro\*, "Bond Activation and Structural Arrangements Induced by Electron-Transfer", Electrochemistry: Long- and Short-Lived Intermediates in Coordination and Organometallic Compounds Meeting, Siena, Italy, 1998, p. 7 (*Plenary lecture*).
- 38 A.J.L. Pombeiro\*, "Unconventional Methods and Substrates in Coordination Chemistry" (in Portuguese), IV Conference on Inorganic Chemistry (Portuguese Chemical Society), Peniche, Portugal, 1999, PL5, p. 15-16 (*Plenary lecture*).
- 39 V. Yu. Kukushkin, A.J.L. Pombeiro\*, "Metal-Assisted Reactions of Oximes and Related Species", 14<sup>th</sup> Summer School on Coordination Chemistry, Polanica-Zdrój, Poland, 1999, L13, p. 25 (*Plenary lecture, presented by A.J.L.P.*).
- 40 A.J.L. Pombeiro\*, "A Quarter of a Century of Collaboration between the Unit of Nitrogen Fixation/Nitrogen Fixation Laboratory and the Complexo Interdisciplinar", Symposium on "Chemical & Biochemical Activation of Small Molecules" in honour of Profs. R.L. Richards and B. Smith, John Innes Centre, Norwich, U.K., 1999.

- 41 A.J.L. Pombeiro\*, “Electron-Transfer Promoted Bond-Cleavage in Coordination Compounds”, 3<sup>rd</sup> Internat. Conference on Progress in Inorganic and Organometallic Chemistry (PIOC), Polanica Zdrój, Poland, 2000, L14 (*Plenary lecture*).
- 42 A.J.L. Pombeiro\*, “Electrochemically Induced Bond Cleavage in Coordination Compounds”, Metal-Containing Molecules, 1<sup>st</sup> Chianti Electrochemistry Meeting, Siena, Italy, 2000, p. 12 (*Plenary lecture*).
- 43 A.J.L. Pombeiro\*, “Activation of Alkanes and Nitriles towards Metal-mediated Syntheses”, 4<sup>th</sup> International School of Organometallic Chemistry (ISOC), Camerino, Italy, 2003, p. 19 (*Plenary lecture*).
- 44 A.J.L. Pombeiro\*, M.F.C. Guedes da Silva, “Bond and Structure Activation by Anodic Electron-Transfer: Metal-Hydrogen Bond Cleavage and *cis/trans* Isomerization in Coordination Compounds”, New Trends in Molecular Electrochemistry and XII Meeting of the Portuguese Electrochemical Society, Academy of Science of Lisbon, Lisbon, 2003, PL9, p. 10. (*Plenary lecture, presented by A.J.L.P*)
- 45 A.J.L. Pombeiro\*, “Mechanisms of Electron-Transfer Induced Deprotonation Reactions at Hydride and Other Complexes”, Inorganic Mechanisms Discussion Group, Royal Society of Chemistry, Newcastle, U.K., 2003.
- 46 A.J.L. Pombeiro\*, “Metal-promoted C-H Bond Formation or Cleavage at Nitriles, Alkynes or Alkanes”, 7<sup>th</sup> FIGIPS Meeting in Inorganic Chemistry, Lisbon, Portugal, 2003, p. 84 *Invited lecture (minisymposium on “C-H and C-C Bond Formation”)*.
- 47 A.J.L. Pombeiro\*, “Activation and Functionalization of Alkanes”, 15<sup>th</sup> Summer School on Coordination Chemistry, Szklarska Poreba, Poland, 2004, L20, p. 30 (*Plenary lecture*).
- 48 A.J.L. Pombeiro\*, “Activation of Complexes by Electron-Transfer: Isomerization and Cleavage of Bonds with Hydrogen”, VIII Iberic Meeting of Electrochemistry / XIII Meeting of the Portuguese Electrochemical Society, Covilhã, Portugal, 2005, P2, pp. 5-6 (*Plenary lecture*).
- 49 A.J.L. Pombeiro\*, “Homogeneous Catalysis in the *Master Multinational de Chimie Moléculaire* (École Polytechnique) and in the Functionalization of Alkanes (IST)”, 7<sup>th</sup> Meeting of the Catalysis and Porous Materials Division of the Portuguese Chemical Society, Lisbon, 2005, pp. 45-47.
- 50 A.J.L. Pombeiro\*, “Vanadium Catalysed Alkane Functionalization Reactions under Mild Conditions”, 5<sup>th</sup> International Vanadium Symposium, S. Francisco, California, U.S.A., 2006, 046 INOR 853, p. 30.
- 51 A.J.L. Pombeiro\*, “Metal and Ligand Effects on the Redox Potential of Coordination Compounds”, 4<sup>th</sup> Chianti Meeting on Inorganic Electrochemistry”, Siena, Italy, 2006, p. 11.
- 52 A.J.L. Pombeiro\*, “Oxidative Functionalization of Alkanes under Mild Conditions Catalysed by Transition Metal Complexes with N,O- or O- Ligands”, 9<sup>th</sup> FIGIPAS Meeting in Inorganic Chemistry, Vienna, Austria, 2007, SL-11 (*Session lecture*).
- 53 A.J.L. Pombeiro\*, “Bioinspired Transition Metal Systems for the Mild Catalytic Oxidation of Light Alkanes”, 13<sup>th</sup> International Conference on Biological Inorganic Chemistry (ICBIC), Vienna, Austria, 2007, SL 088, *J. Biol. Inorg. Chem.*, 2007, 12, Supplement 1, S160 (*Session lecture*).
- 54 A.J.L. Pombeiro\*, “Metal-Catalyzed Functionalization of Alkanes under Mild Conditions”, International Workshop on Coordination Chemistry, National Taiwan University of Science and Technology, Taipei, 2007.
- 55 A.J.L. Pombeiro\*, “Current Research in Coordination Chemistry and Catalysis at the IST (Coordination Chemistry and Molecular Electrochemistry Group)”, International Workshop

- on Coordination Chemistry, National Taiwan University of Science and Technology, Taipei, 2007.
- 56 A.J.L. Pombeiro\*, “Molecular Electrochemistry of Coordination Compounds: Redox Potential-Structure Relationships and Activation by Electron-Transfer”, International Workshop on Coordination Chemistry, National Taiwan University of Science and Technology, Taipei, 2007.
- 57 E. Arantes e Oliveira, A.J.L. Pombeiro\*, “The Academy of Sciences of Lisbon in an ESF-ALLEA Context”, ESF-ALLEA High Level Workshop on the Collaboration between ESF and the Academies, ESF, Brussels, 2008 (*presented by A.J.L.P.*)
- 58 A.J.L. Pombeiro\*, “N- and N,O-Ligands in Metal-mediated and Self-assembly Synthesis, and in Catalytic Functionalization of Alkanes”, 4<sup>th</sup> EuCheMS Conference on Nitrogen-Ligands in Coordination Chemistry, Metal-Organic Chemistry, Bioinorganic Chemistry & Homogeneous Catalysis, Garmisch-Partenkirchen, Germany, 2008, SL17, p. 61 (*Session lecture*).
- 59 A.J.L. Pombeiro\*, “Single-pot Functionalization Reactions of Alkanes Catalyzed by Transition Metal Complexes”, International Conference on Organometallic and Coordination Chemistry (ICOMCC), Nizhny-Novgorod / Volga river, 2008, PL7 (*Plenary lecture*).
- 60 N.A. Bokach, M.-J. Wang, M.D. Revenco, A.J.L. Pombeiro\*, V.Yu. Kukushkin, “Pop-the-Cork Strategy in Synthetic Utilization of Imines”, International Conference on Organometallic and Coordination Chemistry (ICOMCC), Nizhny-Novgorod / Volga river, 2008, S12 (*presented by V.Yu. Kukushkin*) (*Plenary lecture*).
- 61 A.J.L. Pombeiro\*, “Single-pot Oxidations of Alkanes under Mild Conditions Catalyzed by Transition Metal Complexes”, Symposium in Honour of Eric Derouane, Technical University of Lisbon, Lisbon, Portugal, 2008.
- 62 A.J.L. Pombeiro\*, “Complexes with N- and O-ligands in the Catalytic Partial Oxidation of Alkanes”, Workshop on New Hybrid Metal-organic Materials, University of Camerino, Italy, 2009.
- 63 A.J.L. Pombeiro\*, “Metal Complexes and Assemblies as Catalyst Precursors for Single-pot Oxidations of Alkanes”, International Workshop on Materials for Catalysis and Energy, National Taiwan University of Science and Technology, Taipei, 2009.
- 64 A.J.L. Pombeiro\*, “Metal-catalyzed and -mediated Mild Syntheses of C-, N- and O-containing Compounds”, International Workshop on Materials for Catalysis and Energy, National Taiwan University of Science and Technology, Taipei, 2009.
- 65 A.J.L. Pombeiro\*, “Carboxylation and Peroxidative Oxidation of Alkanes under Mild Conditions”, Gordon Research Conference, Physical Organic Chemistry – Molecular Design and Synthesis, Holderness, USA, 2009.
- 66 A.J.L. Pombeiro\*, “Functionalization of Alkanes, a Challenge to Modern Chemistry”, XII Regional Seminar of Ph.D. Students on Organometallic and Coordination Chemistry, Szklarska Poreba, Poland, 2009, PL1 (*Plenary lecture*).
- 67 A.J.L. Pombeiro\*, “Electrochemical Characterization of Coordination Compounds and Selected ET-Induced Reactions”, 43<sup>rd</sup> Heyrovský Discussion on Electrochemistry of Organic Molecules and Coordination Compounds, J. Heyrovský Institute of the Czech Republic, Castle Trest, Czech Republic, 2010, p.31 (*Plenary lecture*).
- 68 A.J.L. Pombeiro\*, “Functionalization of Alkanes under Mild Conditions”, 9<sup>th</sup> Congress of the Interdivisional Group of Organometallic Chemistry of the Italian Chemical Society (COGICO), Florence, Italy, 2010, PL3, p.15 (*Plenary lecture*).

- 69 A.J.L. Pombeiro\*, “Metal-catalyzed Selective Oxidation of Alkanes under Mild Conditions”, 24<sup>th</sup> International Conference on Organometallic Chemistry (ICOMC), Taipei, Taiwan, 2010, Ref
- 70 A.J.L. Pombeiro\*, “Partial Oxidation and Carboxylation of Alkanes under Mild Conditions”, 3<sup>rd</sup> EuCheMS (European Association for Chemical and Molecular Sciences) Chemistry Congress, Nurnberg, Germany, 2010 (Metal Catalysis Symposium, *Session lecture*).
- 71 A.J.L. Pombeiro\*, “Self-assembled Multinuclear Coordination Compounds with N,O-Ligands and Applications in Alkane Oxidations”, *Molecular Science – From Molecular to Particulate Building Blocks* (3<sup>rd</sup> EuCheMS Satellite Meeting), Erlangen / Schloss Atzelsberg, Germany, 2010.
- 72 A.J.L. Pombeiro\*, “Redox Potential-Structure Relationships and Activation of Coordination Compounds by Electron-Transfer”, 61st Annual Meeting of the International Society of Electrochemistry, Nice, France, 2010 (Molecular Electrochemistry - Methods, Models, Molecules, Materials Symposium, *Session lecture*).
- 73 A.J.L. Pombeiro\*, “Oxo-Vanadium Catalysts for Mild and Partial Oxidation and Carboxylation of Alkanes”, 7<sup>th</sup> International Symposium on the Chemistry and Biological Chemistry of Vanadium, Toyama, Japan, 2010, O-22.
- 74 A.J.L. Pombeiro\*, “Functionalization of Alkanes under Mild Conditions”, XVI “Luso-Galego” Chemistry Meeting, Aveiro, Portugal, 2010 (*Plenary lecture*).
- 75 A.J.L. Pombeiro\*, H.R.M.L.Pombeiro\*, “Approaches towards “Green Energy” and “Green Catalysis” in Portugal”, Centennial International Conference of the Chinese Institute of Engineers, Taipei, Taiwan, June 2011 (*Plenary lecture*).
- 76 A.J.L. Pombeiro\*, “Complexes Bearing N-, N,O- or N,P- ligands in Multinuclear Assemblies and in Oxidation or C-C Coupling Catalyses”, 5th EuCheMS Conference on Nitrogen Ligands, Granada, Spain, September 2011 (*Keynote lecture*).
- 77 A.J.L. Pombeiro\*, “Molecular Electrochemistry of Coordination Compounds: Redox Potential-Structure Relationships and ET-induced Reactions”, XIII Iberian Meeting of Electrochemistry/ XXXII Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry, Murcia, Spain, September 2011 (*Plenary lecture*).
- 78 A.J.L. Pombeiro\*, “Electron-Transfer in Coordination Compounds: Redox Potential and Selected ET-induced Reactions”, 62<sup>nd</sup> Annual Meeting of the International Society of Electrochemistry, Niigata, Japan, September, 2011.
- 79 A.J.L. Pombeiro, “Towards Partial Oxidation of Alkanes under Green Conditions”, International Symposium on Homogeneous Catalysis, Toulouse, France, July, 2012.
- 80 A.J.L. Pombeiro, “Metal-catalyzed, Metal-promoted and Metal-free functionalization of alkanes”, 4th EuCheMS (European Association for Chemical and Molecular Sciences) Chemistry Congress, Prague, August, 2012 (*keynote lecture*).
- 81 A.J.L. Pombeiro, “Oxidations of Alkanes and Alcohols under Mild and Green Conditions”, FOC (Frontiers of Organometallic Chemistry) Congress, St. Petersburg, Russia, September, 2012 (*plenary lecture*).
- 82 A.J.L. Pombeiro, “Can Alkanes Become Feedstocks for Organic Synthesis?”, *Catalysis: from the Active Site to the Process* (Symposium in honor of F. Ramôa Ribeiro), Lisbon, October 2012.
- 83 A.J.L. Pombeiro, M. F. C. Guedes da Silva, “Redox Potential Parameterization in Half Sandwich Coordination Compounds”, 46th Heyrovský Discussion (Molecular

- electrochemistry in organometallic science), Heyrovský Institute of the Czech Republic, Castle Trest, Czech Republic, June, 2013 (presented by AJLP).
- 84 A.J.L. Pombeiro, "Catalysis towards Functionalization of Alkanes under Green Conditions", 9<sup>th</sup> National Meeting on Catalysis and Porous Materials, Portuguese Chemical Society, Porto, May 2013, PL1, p.3 (*plenary lecture*).
- 85 A.J.L. Pombeiro, "Metal-assisted and Metal-catalyzed Activation of Small Molecules", XXIII National Meeting of the Portuguese Chemical Society, Aveiro, June 2013, FS1, p.25 (*plenary lecture, Ferreira da Silva Prize*).
- 86 A.J.L. Pombeiro, M.F.C. Guedes da Silva, "Electrochemical Ligand Parameterization in Half-Sandwich Complexes", XV Iberian Meeting of Electrochemistry/ XXXIV Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry, Valencia, Spain, July 2013 (presented by AJLP) (*keynote lecture*).
- 87 A.J.L. Pombeiro, M.F.C. Guedes da Silva, M.L. Kuznetsov, E.C.B.A. Alegria, L.M.D.R.S. Martins, "Combined Electrochemical and Theoretical Studies on ET-induced Reactions of Coordination Compounds", 64th Annual ISE (International Society of Electrochemistry) Meeting, Queretaro, Mexico, September, 2013 (*keynote lecture*, presented by AJLP).
- 88 A.J.L. Pombeiro, M.F.C. Guedes da Silva, "Redox Potential as a Tool for the Characterization and Identification of Metal Complexes", MicroEchem 3013 (New Processes and Materials Based on Electrochemical Concepts at the Microscopic Level, Satellite Conference to the 64th Annual ISE Meeting), La Muralla, Amealco de Bonfil, Queretaro, Mexico, September, 2013 (*keynote lecture*, presented by AJLP).
- 89 A.J.L. Pombeiro, M.F.C. Guedes da Silva, M.L. Kuznetsov, M.N. Kopylovich, K.V. Luzyanin, V.Yu. Kukushkin, "Nitrile- and Isocyanide-derived Pd and Pt Complexes in Metal-mediated Synthesis and Catalytic C-C coupling", 20<sup>th</sup> Chernyaev Conference on Chemistry, Analytics and Technology of Platinum Metals, October 7-12, 2013, Krasnoyarsk, Russia (*plenary lecture*, presented by AJLP).
- 90 A.J.L. Pombeiro, "Functionalization of Alkanes under Mild Conditions: a Challenge to Coordination Chemistry", Zing Coordination Chemistry Conference, Cancun, Mexico, December, Dec 5-9, 2013 (*plenary lecture*).
- 91 A.J.L. Pombeiro, "On the Way to Metal-catalyzed and Metal-free Functionalization of Alkanes under Green Conditions", One Day on Organometallic Chemistry (in honor of Armando J. L. Pombeiro), University of Oviedo, Jan. 2014
- 92 A.J.L. Pombeiro, "Mono- and Multinuclear Compounds as Efficient Catalyst Precursors in Oxidations of Alkanes and Alcohols", 16th Plenary Scientific Meeting of Inorganic Chemistry/ 10th Scientific Meeting of Solid State Chemistry, Almeria, June 2014, PL1 (*plenary lecture*).
- 93 A.J.L. Pombeiro, "Vanadium Catalysts in Alkane Partial Oxidation", 9<sup>th</sup> International Vanadium Symposim, Padova, June-July, 2014.
- 94 A.J.L. Pombeiro, "Oxidations of Alkanes and Alcohols under Mild Conditions", XXVI International Conference on Organometallic Chemistry (ICOMC), Sapporo, Japan, July 2014, 2D04S (*session lecture*).
- 95 A.J.L. Pombeiro, "From Electrocatalysis to Alkane Oxidation Catalysis with Inorganic Coordination Compounds", South Europe – Japan Joint Forum: Inorganic Chemistry and Its Interfaces", Strasbourg, France, October 2014 (*plenary lecture*).
- 96 A.J.L. Pombeiro, "Metal-catalyzed Oxidations of Alkanes under Mild Conditions", Conference on Achievements and Problems in Modern Chemistry – Symposium of the



International Laboratory of Organometallic Chemistry, Saint Petersburg State University, Russia, November 2014, p.185 (*plenary lecture*).

- 97 A.J.L. Pombeiro, "Catalytic Alkane Oxidations under Mild Conditions", Symposium on Recent Advances in Chemistry (REACH-2015), North Eastern Hill University, Shillong, India, March 2015, PL-2, p.4 (*plenary lecture*).

#### OTHER INVITED LECTURES, SEMINARS, ETC.

- 1 "Addition Reactions of *trans* [Mo(CNR)<sub>2</sub>(dppe)<sub>2</sub>]", Chemistry Discussions, Unit of Nitrogen Fixation, University of Sussex, U.K., 1974 (with R.L. Richards).
- 2 "Carbyne Complexes. Preparation and Reactions", Inorganic Discussions, University of Sussex, U.K., 1975.
- 3 "Carbyne Complexes of Molybdenum and Tungsten", VIII Leeds-Sheffield Conference, U.K., 1976 (with J. Chatt and R.L. Richards).
- 4 "Dinitrogen Displacement from Metal Complexes. The Generation of Carbyne Complexes", Inorganic Chemistry Seminars, Wayne State University, U.S.A., 1981.
- 5 "Isocyanide and Derived Carbyne Complexes of Rhenium", Inorganic Discussions, University of Sussex, U.K., 1981.
- 6 "Chemistry and Electrochemistry of Isocyanide Complexes with Dinitrogen Binding Sites", University of Southampton, U.K., 1982.
- 7 "Binding and Activation of Isocyanides by N<sub>2</sub> Ligating Transition Metal Centres", University College London, U.K., 1984.
- 8 "Activation of Isocyanides and Acetylenes by Dinitrogen-Binding Group VI and VII Transition Metal Centres", University of Birmingham, U.K., 1984.
- 9 "Application of Isocyanides and Electrochemical Methods on the Study of Dinitrogen and its Binding Sites", Institute of Chemical Engineering and Physical Chemistry, Technical University of Cracow, Poland, 1985.
- 10 "Activation of Small Molecules by Transition Metal Centres: Models for Nitrogenase", Technische Universität München, Garching, Federal Republic of Germany, 1985.
- 11 "Electrochemistry of Complexes of Isocyanides and Related Ligands. Application to the Study of Their Electronic Properties and Affinity for the Binding Sites", University of Poitiers, France, 1985.
- 12 "Rhenium-Carbon Multiple Bonds: Isocyanide- or Alkyne-derived Carbyne, Carbene, Allene and Metallacyclopentene Complexes", University of Newcastle upon Tyne, U.K., 1986.
- 13 "Activation of Alkynes and Isocyanides by Electron-Rich Metal Centres", University of Sheffield, U.K., 1986.
- 14 "Alkyne Activation by Rhenium Sites", University of Sussex, U.K., 1986.
- 15 "Generation of Metal-Carbon Multiple Bonds by  $\beta$ -Electrophilic Addition to Isocyanide or Alkyne-Derived Ligands", Universität Würzburg, Federal Republic of Germany, 1987.
- 16 "Chemistry and Electrochemistry of Electron-Rich Complexes with Unsaturated Carbon Coordination", University of Amsterdam, The Netherlands, 1988.
- 17 "Syntheses and Reactivity of Isocyanide, Nitrile and Alkyne-Derived Complexes", University of Essex, U.K., 1988.

- 18 "Chemistry and Electrochemistry of Complexes with Small Unsaturated Ligands", Faculty of Engineering (Industrial Chemistry Institute, University of Padova) and Faculty of Mathematical, Physical and Natural Sciences (Institute of General and Inorganic Chemistry, University of Parma), Italy, 1989.
- 19 "Chemistry and Electrochemistry of Complexes with Nitrogenase Substrates", Faculty of Mathematical, Physical and Natural Sciences (Department of Chemical Sciences), University of Trieste, Italy, 1990.
- 20 Participation at a round table discussion on "Information in Science and Technology in the Route for the European Economic Community" (chairman: Prof. V.M. Tyutyunnik), within the monthly programme "Under The  $\pi$ -Sign" of the Moscow Television, U.S.S.R., 1991 (*TV round table discussion*).
- 21 "Activation of Small Unsaturated Molecules: Chemistry and Electrochemistry of Their Rhenium Complexes", Chemistry Department, Institute for Nuclear Sciences and Engineering (ICEN), National Laboratory for Engineering and Industrial Technology (LNETI), Sacavém, Portugal, 1993.
- 22 "Complexes with Multiple Metal-Carbon Bonds towards Organic Synthesis", meeting of the EC Network on "Multiple Metal-Carbon Bond Species in Selective Processes", University of Milan (Department of Organic and Industrial Chemistry), Italy, 1995.
- 23–31 "The State of Research in Portugal" or "Scientific Research in Portugal – Current Situation and Perspectives", Air Force High Studies Institute, Higher Course on Air War, Sintra, Portugal, 1995-2003 (annual up-dated lectures, 3 or 4h).
- 32 "Complexes with Multiple Metal-Carbon Bonds: Some New Results and Perspectives", meeting of the EC Network on "Multiple Metal-Carbon Bond Species in Selective Processes", University of Rennes, France, 1996.
- 33 "Molecular Electrochemistry of Complexes with Coordinated Small Molecules", meeting of the EC Network on "Selective Processes and Catalysis Involving Small Molecules", Institute for Biological and Chemical Technology (ITQB), Oeiras, Portugal, 1996.
- 34 "Developments in the Chemistry and Electrochemistry of Some Complexes with Multiple Metal-Carbon Bonds", meeting of the EC Network on "Multiple Metal-Carbon Bond Species In Selective Processes", University of Milan (Department of Organic and Industrial Chemistry), Italy, 1997.
- 35 "Complexes with Multiple Metal-Carbon Bonds and Related Species (Latest Results)", meeting of the EC Network on "Multiple Metal-Carbon Bond Species in Selective Processes", University of Camerino, Italy, 1997.
- 36 "Coordination Chemistry in Biological and Industrial Catalysis", Expoquímica 98 (Expochemistry 98), ISEL (Higher Institute of Engineering of Lisbon), Lisbon, 1998.
- 37 "Activation of Small Molecules with Biological, Environmental or Industrial Significance", VII Conferences Series, New University of Lisbon, Monte da Caparica, 1999.
- 38 "Activation of Unsaturated C- or P-ligated Small Molecules: Alkynes, Phosphaalkynes, Isocyanides and Cyanide", G.A. Razuvaev Institute of Organometallic Chemistry of the Russian Academy of Sciences, Nizhny Novgorod, Russia, 1999.
- 39 "Molecular Electrochemistry of Coordination Compounds", G.A. Razuvaev Institute of Organometallic Chemistry of the Russian Academy of Sciences, Nizhny Novgorod, Russia, 1999.

- 40 “Activation of Small Molecules towards Some Biomimetic, Pharmacological and Synthetic Processes”, Department of Engineering Chemical Processes, University of Padova, Italy, 2001.
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- 65 "Towards Mild Oxidation and Carboxylation of Alkanes", École Polytechnique, Paris, June, 2013.
- 66 Allocation at the opening session of the XV Iberian Meeting of Electrochemistry/ XXXIV Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry, Valencia, Spain, July 2013.
- 67 "In memory of Prof. Rino Michelin", *Alza-bara* academic funeral ceremonies, Bo Palace, University of Padova, Italy, July 2014.
- 68 Presentation of the book "Advances in Organometallic Chemistry and Catalysis" (*The Silver/Gold Jubilee ICOMC Celebratory Book*, J. Wiley & Sons, 2014), Luncheon Meeting, XXVI International Conference on Organometallic Chemistry, Sapporo, Japan, July 2014.
- 69 Allocation at the conference banquet of the XXVI International Conference on Organometallic Chemistry, Sapporo, Japan, July 2014.
- 70 Presentation of the Centro de Química Estrutural and its Strategic Program (2015-20) to the international Evaluation Panel of the FCT Research and Development Units, October 2014.
- 71 Allocation at the Jubilee ceremony in honor of Prof. J. L. Figueiredo, Faculty of Engineering, University of Porto, March, 2015

## PRESENTATIONS (ORALLY OR BY POSTER) AT CONFERENCES OR SYMPOSIA

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- 12 A.J.L. Pombeiro\*, "Studies on a Novel Route for Carbyne-Type Ligands through Attack of Iminium Halide to a Dinitrogen Monophosphine Complex, *cis*-[Mo(N<sub>2</sub>)<sub>2</sub>(PMe<sub>2</sub>Ph)<sub>4</sub>]", presented at the Academy of Sciences of Lisbon, May 7<sup>th</sup>, 1981 (see II.22).
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