

Jean-Marie TARASCON

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Member of the French Academy of Science

Director of the French network on electrochemical energy storage (RS2E), FRC-NRS 3459



Summary of career

- **June 2013 till present:** Professor at College-de-France holding the chair in “Chemistry of solids-Energy”
- **January 2009 to May 2013:** High merit Professor of Chemistry at the University of Picardie in Amiens holding in parallel the 2010-2011 Chair on “sustainable energy-society and environment” at the College de France in Paris. Director of the new LABEX “STORE-EX and heading French scientific and technology hub on electrochemical energy storage energy network.
- **January 1995 to December 2008:** Professor and head of Laboratory of Reactivity and Solid State Chemistry Univ. of Amiens, associated to the CNRS.
- **May 1989 to December 1994:** Director of the Energy Storage Group, Bellcore, Red Bank, NJ, USA. Responsible for defining research priorities, planning and directing the battery research effort at Bellcore that led to the development of the first plastic Rechargeable Li-ion battery.
- **August 1983 to March 1989:** Member of Technical Staff, Solid State Chemistry Division, Bellcore, Red Bank, NJ, USA. Responsible for the synthesis, characterization of new electronic materials (new superconductors, ferroelectrics and new rechargeable battery materials) for new solid state electronic devices.

Summary of education

- **M.S. in Chemical Engineering**, University de Bordeaux, 1977
- **DEUG in Physics and Chemistry**, University of Bordeaux, 1978
- **PhD in Solid State Chemistry**, University of Bordeaux, 1981

Publications summary

- **Publications:** Author or co-author of **631** publications.
- **Patents:** Holder of **80** patents; 2 other pending that cannot presently be revealed.
(More than 20 patents were licensed to several international companies and 7 have been commercialised)
- **Books:** Co-editor of two Materials Research Society Proceedings
Editor of a book on Recent Advances in Rechargeable Li Batteries.
- **Talks:** More than **300** invited talks at international meetings.
- **Statistics:** h factor = **112**, Total citations: **72500**

Research area summary / teaching and / or outreach summary

- Throughout my career my research has focussed on **the synthesis, characterization, and determination of structure/property relationships of electronic, superconductor and rechargeable battery materials for solid state electronic devices**. My activities were initially devoted to the discovery of new superconducting materials to minimize energy transport losses and for the last twenty years they have switched towards the investigation of new electrode materials to enable the development of highly performing battery systems for both electric vehicles and grid applications. Presently my research interests deals with i) the structural design of new high voltages insertion materials together with the search of new Li reactivity mechanisms, ii) the mastering of interfaces, iii) the development of novel eco-efficient synthesis processes including inorganic and organic

electrode materials and iv) the exploration of other chemistries beyond Li-ion such as Na-ion, Li-air, Li-S and redox flow batteries.

- Besides, I devoted an important part of my time towards teaching at various levels including graduate and master as well as giving lectures in numerous French elementary schools to arouse an early interest in science. Moreover, I participate in various energy workshops and decision committees as well as in writing [insight/review articles](#) on energy related topics.

Other indicators of esteem

Prizes / awards / medals

- Received the **Bellcore award of excellence** 1987
- Received the Bellcore Distinguished Member of Technical staff (DMTS) in 1988
- Received the **Bellcore President Award** in 1993
- Nominated Bellcore Fellow in 1994
- Received the Industry Week 1994 Best Technology of the Year Award for the Li-Ion Plastic Battery
- Received an R&D 100 Award for the Development of Rechargeable Lithium Manganese Oxide/Carbon Li-ion battery 1994
- Received the Popular Mechanics 1995 Design and Engineering Award for the Li-Ion Plastic Battery
- Received an R&D 100 Award for the Development of Plastic Rechargeable Li-ion battery 1995
- Received the International Battery Association Research Award for 1995 for the $\text{LiMn}_2\text{O}_4/\text{C}$ Li-ion battery
- Received the 1997 Battery Technology Award from the Electrochemical Society Inc.
- Nominated Corresponding Member of the Académie des Sciences in April 1999
- Member of the European Academy of Arts, Sciences and Humanities since January 2001
- Received the 2001 Thomas Alva Edison Patent Award
- Elected to the New Jersey Inventors Hall of Fame in 2001
- Received **VOLTA MEDAL AWARD** in 2002
- **Nominated at the «Institut Universitaire de France»** IUF in 2002; holding the energy storage Chair
- Received the “Nuit des talents de la Somme” award in 2004
- Received the **2004 ISI AWARD for being among the top 15 French scientists the most cited over the last 20 years**
- Co-laureate of the 2004 «Prix du rayonnement Français; Sciences Mathématiques et physiques»
- **Permanent Member of the French Academy of Sciences**, November 2004.
- Received the 2008 Gold medal of the University of Picardie Jules Verne
- Received the “French Légion d’Honneur” in 2009
- Received the Japan Materials “NIMS” award in 2010
- **Nominated at the “College de France” to held the 2010-2011 Energy Chair**
- Recipient of the **ENI 2011 AWARD** for “Protection of the environment”
- Recipient of the **2011 “Pierre SÜE’ prize”** from the French Chemical Society
- **Nominated in June 2013 at the “College de France” to held the “Chemistry of solids – Energy” chair**
- Recipient of the **2013 “IALB” award** from the International automotive battery association
- **Nominated foreign member of the Royal Society in 2014**
- Recipient of the **2015 IBA Yeager AWARD**
- 2015 **Centenary Prize in the Royal Society of Chemistry**
- Nominated at the university catholic of Louvain to held the 2016 Smets chair
- Recipient of the **2016 Catalan- Sabatier Award** of the Spanish Royal Society

Named lectureships / exchanges (limited to the last 5 years)

- **Kanamura lecture** University of California Santa Barbara, November 2008.
- **Visiting professor** University of California Santa Barbara – April 1st September 31st, 2009 and recipient of the 2009 Cheetham lecture award from the Materials Research Laboratory of USCB.
- **“2011 BP Visiting Lecturer”** at the University of Cambridge, UK.
- **“2011 lecturer at the Indian ECS section”** as part of holding the centenarian chair of the Indian Institute of Sciences.
- **“2011 Lecturer at the College de France”** as holder of the chair in Sustainable Development – Environment, Energy and Society (9 hrs).
- **Faraday lecture** at the Central Electrochemical Research Institute (CECRI) Karaikudi August 10th 2011.
- **Newton lecture** at the Jawaharlal Nehru centre for Advanced Scientific Research (JNCASR) Bangalore August 22nd, 2011.

Organization of meetings / conferences (limited to the last 5 years)

- Co-chairman of:**
- the 2006 International Meeting on Lithium Batteries (IMLB),
 - the 2010 ESF-FWF conference on Nanotechnology for Sustainable Energy
 - the KK symposium on Advanced batteries at the next 2010 Boston MRS meeting
- Chairman of:**
- the symposium on Energy: socio-economical stakes and technological challenges June 6th-7th, 2011
 - the symposium on "Battery safety: is zero risk achievable November 7th, 2011
 - the 2012 ESF-FWF conference on Nanotechnology for Sustainable Energy

Membership of editorial boards / advisory boards / social committees / industry (limited to the last 5 years)

- Member of the Scientific Council for the creation of "SOLEIL", the new French synchrotron (2008 till present).
- Member of the European nanotechnologies, materials and production technologies (NMP) expert advisory group (2006 - till now).
- Member of the advisory board since 2009 of three recently created US Energy Frontier Research Centres (EFRC) headed by M. Thackeray, C. Grey and H. Arhuna, respectively.
- Member the advisory board of a new Energigune Spanish institute (2008-...).
- Scientific advisor (Consulting) for various industries, Renault, Wildcat, Solvionics, Arkema, IFP...
- I have been member of the Advisory Board of several journals: Journal of Solid State Ionics, Journal of European Solid State Electrochemistry, Journal of Materials Chemistry, Journal of Solid State Sciences and still presently collaborating with "Comptes Rendus de l'Académie des Sciences", "Journal of Energy & Environment science", "Chemistry of Materials".
- **Creator and head (2003 - ...)** of the European Network of Excellence ALISTORE (Advanced Li Storage Batteries) which I transformed in 2008 into a European battery Research Institute (ALISTORE-ERI) reuniting 23 European research labs, 15 European Industries and a training ERASMUS MUNDUS program.
- **Creator and Director** of the French National Network (Réseau de Recherche et de Technologie pour le Stockage Electrochimique de l'Energie" (RS2E) which reunites research labs and industries and which was approved by the French Minister V. Pecresse on July 2nd, 2010.

Supervision of staff/students

- Supervised numerous groups of researchers ranging from 20 to 70 members as part of my management activities as i) Director of the Bellcore's Energy Storage Group (1989-1994), ii) Director of the LRCS (1995-2009), iii) of Institute of Chemistry of Picardy (2007-2010) and exceeding presently 150 members as the **newly created French Hub** and **Labex STORE-EX**.
- Supervised more than **60** PhD students and **45** Post-Docs as part of professor activities since back to France in 1995.

Current fundings (limited to the last 5 years)

- Public funding: Holder of an **European advanced research grant (ERC - "ARPEMA")** 2015 and of a **Proof of Concept grant (POC - EMHhAsiS)** 2016. Principal researcher in competitive research projects (Euroliion, Naiades) financed by the European commission as well as in competitive French research programs (Hypolite, Sodium, Deliredox, Devega, Store-ex and RS2E).
- Industrial funding: Manage **competitive research contracts** with different industries Renault, Solvay/Rhodia, Saint-Gobain, EDF.

