



CURRICULUM VITAE

Jean-Marie Dubois

Born July 14, 1950 in Laxou (France); French citizen.
 Engineer degree in materials science ISIN (1973).
 PhD in Metallurgy, University of Nancy, France (1975),
 Doctor in Physics, Polytechnic Institute of Lorraine, France (1981).
 Scientist at CNRS (1977-2015) and Jožef Stefan Institute (2015-).
 Director Emeritus of Research.



Areas of scientific interest:

Structure and Properties of Metallic Glasses
 Science and Applications of Quasicrystals and Complex Metallic Alloys.

Keywords:

Non-crystalline alloys and compounds: *glasses, quasicrystals, liquid alloys*.
 Structure: *diffraction, models, high-dim crystallography, numerical simulation*.
 Formation and stability: *alloy design, phase transitions, phase selection and lattice complexity*.
 Properties of quasicrystals: *electronic structure, heat transport, solid-solid adhesion, wetting, contact mechanics*.
 Applications of quasicrystals & complex intermetallics: *mass production, powders and atomisation, coatings, sintering, application to energy savings, surfaces with reduced adhesion*.

Education:

1969: Baccalauréat / *A level in science*.
 1972: University of Nancy, *Bachelor in science*
 - *Structural and mechanical properties of materials*
 - *Mathematical principles of technology*
 1973: University of Nancy, *Master degree in materials science*
 1974: Diplôme d'Etudes Approfondies de Chimie Minérale et Métallurgie / *cannot be translated to English*
 22.10.1975: PhD thesis in Physics
Study of the ϵ phase in Fe-C and Fe-X-Si melt spun alloys
 29.04.1981: State doctorate in Physics, National Polytechnic Institute of Lorraine (this degree, which could last for many years, does not exist anymore in France)
Study of the structure and hyperfine magnetic properties of amorphous transition metal-metalloid alloys
Jury: M. E. Bonnier (Chairman), Mrs Y. Calvayrac, MM. G. Beck, P.H. Gaskell, U. Gonser, J. Goulon, Chr. Janot, G. Le Caër.
Supervisor: G. Le Caër.

Career:

1974 - 1975 Young Scientist, French Ministry of Defense.
 01.10.1977 Permanent position as junior fellow of CNRS, France.
 01.10.1981 Promotion to « chargé de recherche 1st class » at CNRS.
 1982 - 1983 Visiting Scientist of the Cavendish Laboratory, University of Cambridge (G.B.).
 01.10.1985 Director of Research at CNRS, 2nd class (*equivalent to full professor*).
 01.10.1996 Director of Research at CNRS, 1st class.
 01.10.2004 Distinguished Director of Research at CNRS, rank A.
 01.02.2012 Distinguished Director of Research at CNRS, rank B.
 15.07.2015 Retired from French civil service, Director Emeritus of Research at CNRS.
 20.10.2015 Scientific advisor, Nanostructured Materials Dpt, Jožef Stefan Institute, Ljubljana, Slovenia.



Major management responsibilities:

- 1978-today: PhD supervisor of **30** doctor students. Partner or principal investigator in more than **20** collaborative projects with industry in France and Europe.
- 1985-2000: Founder and leader of a research group dedicated to Non-Crystalline Solids (*depending of the year, about 6 permanent staff and 10 PhD students*).
- 1989-1993: Manager of the CNI/MAT project (intensive computing in materials science), (*120 participants from 12 French laboratories*)
- 1992-1999: Director of a French priority program on quasicrystals and complex compounds (*up to 130 scientists in 30 French laboratories*).
- 1995-2000: Scientific Director of the Materials Engineering Centre at Ecole des Mines de Nancy (*220 persons*).
- 2001-2004: Director, Lab. of Materials Science and Engineering, Ecole des Mines, Nancy (*90 staff members*).
- 2001-2005: Co-ordinator of Brite-Euram project n° 5188 (1992-1995) & Growth 2000 'Smart Quasicrystals'.
- 2003-2012: Project leader for the foundation and building of Institut Jean Lamour in Materials-Metallurgy-Nanosciences-Plasmas-Surfaces (*total budget: 90 M€, 28 400 m²*).
- 2004-2012: Member of the working group and bureau of the so-called "Pôle de Compétitivité" MIPI (Innovative Materials-Intelligent Products, now called Materialia). Chairman of the Strategy Council of Materialia.
- 2005-2010: Co-ordinator of the CMA (Complex Metallic Alloys) European Network of Excellence with 20 partners in 12 European Countries (*345 scientists, 60 PhD students, budget: 7.3 M€ over 5 years*).
- 2005-2012: Founding director of Institut Jean Lamour (*450 staff members, annual budget 21 M€*), a joint institute between CNRS and the University of Lorraine.
- 2012-2015: Chairman Section 15 Solid-state chemistry – nanomaterials - processing of CoNRS (professional chamber in charge of the evaluation and ranking of all CNRS scientists in this area).
- 2014-2015: Director in charge of the coordination of research in the area of nanosciences and nanomaterials for the north-east regions of France (GDR C'Nano GE).

Authorship:

Author of more than **400** scientific papers (more than 250 articles in refereed journals. Google Scholar: >6800 citations, h=43, i10=155), **19** book chapters, **7** books as editor and **2** monographs, **14** patents (+ 36 international extensions) in solid-state physics, materials science and applications of quasicrystalline materials and complex metallic alloys. Invited speaker at more than **120** international conferences and **90** seminars abroad.

Honours and Awards:

- Overseas Fellow of Churchill College, University of Cambridge, U.K. (1982-1983).
- Jean Rist Award, French Materials & Metallurgy Society, Paris (1983)
- CNRS Bronze Medal (1984).
- Grand Prix Aluminium Pêchiney, Académie des Sciences, Paris (1986).
- IBM Materials Science Award (1987).
- Permanent Invited Professor, Dalian University of Technology, China (1997-).
- Honorary member of the Bolivian Society for Sciences (1998-).
- Xinghai Friendship Award for Foreign Experts, China (1999).
- Yves Rocard Prize, French Physical Society (1999).
- Doctor Honoris Causa, Iowa State University, USA (*since 2000*).
- STA Fellowship, Japan (2001).
- Scientist of the Year 2005 in Lorraine, Le Nouvel Economiste (2005).



Chevalier dans l'Ordre des Palmes Académiques, French Ministry of Higher Education (2006).
 Doctor Honoris Causa, Federal University of Paraiba, Brazil (2006)
 Robert Franklin Mehl 2007 Lecturer of the TMS, USA (2007).
 Associate member of Academy de Stanislas, Nancy (2008-).
 Member of Lorraine Academy of Sciences, 1st section: mathematics, physics & chemistry (2009-).
 Honorary member of Jožef Stefan Institute, Ljubljana, Slovenia (2011).
 Golden Medal, City of Nancy, France (2012).
 Honorary Intern. Chair Prof., National Taipei University of Technology, Taiwan (May 2012-April 2015).
 Permanent invited professor, Jožef Stefan Intern. Post-Graduate School, Ljubljana, Slovenia (2014-).
 Invited professor, Tohoku University, Sendai, Japan (Nov.-Dec. 2014).
 Invited professor, Federal University of Paraiba, Brazil (Nov.-Dec. 2015).

Organisation of international conferences and meetings:

1987: Euroconference on Quasicrystals, Grenoble (*with C. Janot*).
 1888: French Colloquium on Quasicrystals, Nancy.
 1992: CNI/MAT 92 International workshop on Parallel Computing and Distributed Resources in Materials Science, Nancy (*with F. Montoya and H. Bégorre*).
 1995: 5th International Conference on Quasicrystals, Avignon (*with Françoise Cyrot-Lackmann*).
 1996: International Workshop on Aperiodic Structures, Krakow (*with Janusz Wolny*).
 1996: 1st Intern. Conference on New Horizons of Quasicrystals, Ames, Iowa, USA, (*with Alan Goldman, P.A. Thiel and D. Sordelet*).
 1997: Fall Meeting of the French Metallurgy Society, Paris.
 1998: MRS Fall Meeting 1998 Symposium on Quasicrystals, Boston, USA (*with P.A. Thiel, A.P. Tsai et K. Urban*).
 2003: MAI 2003 Intern. Conference on Metallurgy, Arts and Informatics, Nancy (*with J.C. Duriez, J. Hardy et M. Thebault*).
 2003: French-German Colloquium on Quasicrystals, Nancy (*with V. Fournée and H.-R. Trebin*).
 2005: Kick-off meeting of the CMA Network of Excellence, Luxemburg.
 2008: European Workshop on Frontiers in Complex Metallic Alloys, Zagreb, Croatia (*with A. Smontara and J. Dolinšek*).
 2009: 1st Intern. Conference on Complex Metallic Alloys, Nancy.
 2011: World Materials Perspectives Summit, Nancy (*with J.L. Pierquin and O. Bonnet*).
 2014: Les Cristaux de demain dans notre quotidien, 2014 Meeting of Lorraine Sciences Academy.
 2015: World Materials Forum, Nancy (*chairman of the scientific board*).
 2015: First Intern. Symposium on Physics of Surfaces and Interfaces, SIPS 2015, Antalya, Turkey (*with F. Fournée and E. Gaudry*).
 2015: Intern. Symposium Complex Metallic Alloys, a new frontier in solid-state sciences, Annual Meeting of the MRS Brazil, Rio de Janeiro, Brazil (*with D. Cavalcante, S. de Barros and S.J. Guedes de Lima*).

Major research achievements:

- First study of the hcp Fe-C(-Si) ϵ -phase (1977)
- Nanostructuring model of transition metal-metalloid glasses (1981)
- Discovery of the first Al-based metallic glasses, patent (1982)
- Chemical twinning model adapted to the atomic structure of transition metal-metalloid glasses (1984)
- First, preliminary crystal model of Al-Mn quasicrystals based on neutron diffraction data (1986)
- First *in situ* study of the reversible liquid-quasicrystal transition in Al-Cu-Fe alloys (1986)
- First patent on potential applications of quasicrystals (1988)
- Study of the low thermal conductivity of quasicrystals, application to thermal barriers, patent (1991)
- First determination of the low friction coefficient of quasicrystals (1992)
- First attempts to produce quasicrystals at industrial scale – 1000kg/day (1992-94)
- Two-colour symmetry of Penrose tilings, application to large unit cell approximants (1993)

2016
SIPS



**DUBOIS
INTERNATIONAL
SYMPOSIUM**



Department for
Nanostructured
Materials



Institut Jean Lamour

www.flogen.org/sips2016/dubois.php

- Systematic investigation of the electronic partial densities of states in complex metallic alloys (1994-2010)
- Experimental and theoretical investigation of the wetting and friction properties of complex metallic alloys; correlation to partial densities of states and to crystal complexity (1996-2011)
- First systematic investigation of the surface energy of complex metallic alloys (2004-06)
- Potential applications of complex metallic alloys to vacuum and aerospace technologies (2001-2011).
- Re-interpretation of the transport and adhesion properties of Al-based complex intermetallics in terms of self-organised criticality (2011-2015).
- Introduction of the concept and systematic investigation of several Push-Pull alloys (2013-present).