Prof. Philippe Dubois at a quick glance

(Updated in November 2026)



Belgian, born in Charleroi (Belgium), on June 23rd 1965
Married, 2 sons and 2 granddaughters
Master in Chemistry; Ph.D. in Sciences (Chemistry) and postdoc in Chemical Engineering

Current academic positions

In Belgium:

- ***At University of Mons-UMONS, Mons***
  Full Professor *and Director of the Center of Innovation and Research in Materials & Polymers*

-At Materia Nova Research Center ASBL, Scientific Director & Founding-President of the administration board
-At GATE2 S.A. company, Cofounder & Chairman of the administration board
-At University of Liège-ULiège, Adjunct Professor
-At University of Namur-UNamur, invited Professor

Internationally:

-At Michigan State University-MSU, Adjunct Professor in Chemical Engineering and Materials Science, Lansing, MI, USA
-At University of Luxembourg-Uni.Lu, Honorary Professor at Faculty of Science, Technology and Communication
-At Luxembourg Institute of Science and Technology-LIST, National Composite Center-Luxembourg (NCC-L), *NCC-L Scientific director in 2016/17*
-At Université Polytechnique Hauts-de-France, Invited Professor, Valenciennes, France
-At Sichuan University, *Honorary Professor*, Chengdu, China
-At Zhejiang University-ZJU, Guest Professor at National Key-lab of Chemical Engineering Hangzhou, China
-Past-President (1st Founder-President from 2022 to 2024) of the EUNICE European University (170.000+ students-searchers)
-At University of Montpellier, *Doctor Honoris Causa*, France

Representative distinctions and involvements

- Academician - Elected Titular Member of the "Académie Royale de Belgique" (Class of Sciences) *(since 2010)*
- Elected Member of the European Academy of sciences EurASc (Engineering science Division) *(2017)*

- Honorary Rector (Rector 2018-2026) and Vice-Rector for Research (2005-2016) of University of Mons
- Past President of the Belgium Royal Chemical Society (President in *2007/08*)
- Honorary Research Associate by the Belgian National Funds for Scientific Research FNRS (B)
- Co-Founder and President and Scientific Director of *Materia Nova* R&D Center asbl, Mons (B) (since 2000)

- Member of Direction Boards of, e.g., F.R.S.-FNRS ; ARES - *Académie de Recherche et Enseignement Supérieur*; CRef - *Conseil des Recteurs*; Multitel ASBL, IMBC Spinova, UPHF- *Université Polytechnique Hauts-de-France*.
- Past President of Japan-Belgium Association of Polymer Science (Japan/B, President from 2016-2018)

- Member of International Research Committees/advisory boards of the "Ecole des Mines", Alès (France), the Center of Molecular and Macromolecular Studies, Lodz (Poland), Institute IMP at University Claude Bernard Lyon 1 (France), Institute of Polymers of the Bulgarian Academy of Science, Sofia (Bulgaria), New Eurasia Foundation (FNE – Russia).
- Member of the Editorial Board of 22 international scientific journals; Founding member/Associate Editor of Nanocomposites (Taylor & Francis Group) (IF=4.20)
- Member of Editorial Boards of: Biomacromolecules (IF=5.79, ACS) – journal with the highest impact factor in polymer science, Chemistry of Materials (IF=8.54, ACS), European Polymer Journal (Elsevier), Polymer Bulletin (Springer-Verlag), The Open Macromolecules Journal (Bentham Science Publishers Ltd.), Polymer for Advanced Technology (Wiley), Polimery (Industrial Chemistry Research Institute), Reviews of Adhesion and Adhesives (Scrivener Publishing) and Global Journal of Organic Chemistry (Symplex Academic Publishers), Polyolefins Journal (Iran Polymer and Petrochemical Institute), Frontiers in Polymer Chemistry (Nature Publishing group), Journal of Multifunctional Polymers (American Scientific Publishers), Packaging Research (De Gruyter Open Ltd), Coatings (MDPI AG), Journal of Biopolymer Research (OMICS Intern.), Journal of Nanomaterials (Hindawi Publishing), Research (AAAS).

- Referee for more than 25 international scientific journals

Selected awards & recognitions

In Belgium:
- Master's thesis awarded by the Belgian Royal Chemical Society *(1987)*
- J.S. Stas Award by the Belgian Royal Chemical Society - Class of Sciences *(1994)*
- Triennial Award of the Belgian Royal Chemical Society *(2000)*
- Medal of the Belgian Royal Chemical Society *(2008)*
- Elected titular member of the Royal Academy of Belgium (class of Sciences) *(2010)*
- Medal of the Fund for Scientific Research in Flanders "Fonds Wetenschappelijk Onderzoek Vlanderen" *(2009)*
- Medal of the National Fund for Scientific Research in French Community of Belgium *(2010)*
- ECO-BOOSTER Belgium National Award : Belgium Award of Energy and Environment *(2010)*
- ZENOBE 2011 Award : Award for Technological Innovation in Wallonia Region *(2011)*
- FRANCQUI Chair at University of Liège – Agro-Bio Tech *(2021)*
- Medal of the Free University of Brussels *(2023)*
- Nomination as *Commandeur* of *Ordre de Léopold (2024)*
- *Top Scientists in Belgium* (published by Research.com): 1st in Materials Sciences and 2rd in Chemistry *(2025)*
- Gold Medal of the University of Mons *(2026)*
- *Special Envoy appointed by King Philippe* for the socio-economic regeneration of the "Centre" Region *(2026)*
- Chairman of the *University Hospital* Tivoli in La Louvière *(2026)*

- ***FNRS Quinquennal Award in applied exact sciences (2011-2015)***, the highest scientific award delivered every five years by the Belgium FNRS and personally awarded by King Philippe of Belgium *(2016)*

International awards :
- European Cereal Award *"Gerbe d'Or" (1999)*
- *Citation Classic Award* by the Institute for Scientific Information ISI *(2000)*
- *Biennal Award* of the "Groupe Français d'Etudes et d'Applications des Polymères », France *(2001)*
- *Elected Fellow* of International Union of Pure and Applied Chemistry – IUPAC *(2011)*
- *Prof. I. Moscickiego Medal* of the Industrial Chemistry Research Institute, Poland *(2013)*
- *Grand Prix* of the French National Polymer Association GFP, France *(2013)*
- *Special guest professor* recognition, Zhejiang University, Hangzhou, China *(2015)*
- *Honorable member* of Nano Canadian Society *(2015)*
- *PEARL Excellence Award for Research in Luxembourg* (4 million €) delivered by FNR, Luxembourg *(2016)*
- *ICE Award* in Green Materials Journal delivered by the Institution of Civil Engineers, London, UK *(2016)*
- *N.N. Semenov's Medal* from the Academy of Engineering Science, Russia *(2016)*
- Elected member of the European Academy of sciences EurASc (Engineering science Division) (*since 2017*)
- *BEPS Lifetime Achievement Award 2018* by the BioEnvironment Polymer Society, New York, USA *(2018)*
- *Top 2% World Scientists* published by Stanford University; *Top 0.2%* in *Polymer Sciences (2020)*
- *Materials Science Leader Award* by Research.com, n°1 in Belgium *(in 2022, 2023, 2024, 2025 and 2026)*
- Medal of the University of Catania, Italy *(2023)*
- *Doctor Honoris Causa* of University of Montpellier, France *(2024)*
- *Honorary Professor* of Sichuan University, Chengdu, China *(2024)*
- *NTU System Honorary Lectureships Certificate* by 3 National Taiwan Universities in Taipei, Taiwan *(2025)*

- *Top 0.05% Worldwide highly ranked Scholar-Lifetime in Engineering & Materials Sciences* by Scholar GPS *(2025)*
- Medal of the Poznan University of Technology, Poland *(2026)*
- Fellow of the Royal Society of Chemistry *FRSC,* UK *(2026)*

- Personally ranked in "Top 100 materials scientists of the 2000-2010 decade" by Thomson Reuters
World ranking : 18th (over +500,000 scientists); European ranking : 5th & Belgian ranking : 1st

Overall scientific contributions *(some representative figures)*

- original international scientific publications: **828** (***785 peer-reviewed papers and 43 book chapters***)
- international and national invention patents: **79** (min. one third led to industrial production and commercialization; 2 allowed for creating a university spin-off Cie : GATE2 S.A. (previously NANO4 S.A.)
- books and scientific special journal issues (author or scientific editor): **12**
- scientific presentations at conferences (only personal contributions): **350** (plus more than 670 by coll.)
- international and national conferences: 35 personal organizations, 65 as member of the scientific committee

- ***H-index :*** **128** (total number of citations : 77,000)
- PI of **124** financed research projects: 30 (international: EU, NSF), 41 (national), 53 (industrial).
- (Co)direction of 90 Master/DEA/technician theses and 61 PhD theses; supervision of 54 postdocs.

Overall research activities

Scientific involvement can be summarized as follows: ***the key-role of "green" chemistry in nanotechnology and materials science.*** Accordingly, his research activities interconnect organic chemistry, organic and organometallic catalysis, macromolecular chemistry and science of polymeric and (nano)composite materials.

Since the beginning of his career, Professor Dubois has placed the ***eco-design of environmentally friendly polymeric materials*** at the heart of his research activities. His approach encompasses the entire life cycle of materials, from their synthesis and production to their characterization, industrial applications, and the assessment of their societal implications.
His early research focused primarily on the development of bioplastics that are both bio-based and biodegradable, particularly aliphatic polyesters such as polylactides (PLA). In particular, he developed innovative catalytic processes enabling their continuous production through reactive extrusion, several of which have led to industrial applications in collaboration with companies such as Futerro, OKOsix, and Gate2. Building on this research, he has consistently sought to enhance the value of these bioplastics by transforming them into high-value-added materials, particularly composites and nanocomposites.
In parallel, he has developed an approach based on the valorization of renewable biomass—including starch, cellulose, lignin, and saccharides—as a resource for the design of innovative, multifunctional, and high-performance materials.

Over the past decade, his research has focused particularly on several major areas:
High-performance bio-based and biodegradable thermoplastic nanocomposites. He has developed new materials exhibiting advanced thermomechanical and optical properties, as well as functionalities such as self-healing and shape memory, enabling them to adapt to the conditions of their operating environment. He has also demonstrated the possibility of programming the biodegradation of these materials in both time and space through an innovative enzymatic approach, which involves incorporating enzymes specifically selected or engineered for this purpose during the manufacturing process.
Bio-based elastomers with thermoreversible physical crosslinking. These innovative materials, which can be processed and recycled thanks to the reversibility of their physical interactions, have been investigated in collaboration with Michelin, particularly with a view to applications in the tire industry.
Bio-based thermosetting resins. His research has also led to the development of new resins intended, in particular, for coating and adhesive applications. Some of these innovations have reached the commercial market, notably benzoxazine-based thermosetting resins marketed by Bitrez under the CURABOX™ brand.

Professor Dubois also has a particular interest in **upcycling processes** and strategies for conserving natural resources and protecting the environment. For example, his research has led to the development of a continuous recycling process for polyurethane foams using reactive extrusion, converting these materials into reusable polyols that can be used to produce new materials with properties equivalent to, or even superior to, those of the original foams. This approach illustrates his commitment to promoting a circular economy based on the valorization of polymer waste and the design of materials with a lower environmental impact.

Taken together, this body of research forms part of a broader effort to understand, prevent, and control the formation of **microplastics and nanoplastics**, as well as to investigate their potential effects on the environment and, in particular, on human health. In this context, Professor Dubois strives to identify and develop alternatives capable of sustainably reducing the risks associated with these particles, with particular emphasis on strategies that promote their removal or biodegradation in natural and biological environments, including within the human body.

This line of thinking lies at the heart of his most recent book, published on October 1, 2026 in the *L'Académie en poche* series of the Royal Academy of Belgium, under the title *La menace invisible des microplastiques : défis et réponses d'une chimie éco-responsable* (The Invisible Threat of Microplastics: Challenges and Responses from Environmentally Responsible Chemistry, book translated in English, Portuguese and Chinese). This book extends his scientific work by examining the environmental and health challenges associated with microplastics and exploring the role that environmentally responsible chemistry can play in developing sustainable solutions.
