Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Guy Bertrand

Image: Mariola Hupert

Name: **Guy Bertrand**
Born: **17 July 1952**

Research Priorities: Chemical synthesis of reactive molecules, metal-free catalysis, chemistry of stable carbenes

Guy Bertrand is a French chemist, who achieved significant progress with the synthesis of reactive molecules. His research group combined an experimental approach with quantum-mechanical calculations to draft new compounds. With those, the scientist addresses the high cost and the toxicity of transition metal complexes that are widely utilized in catalysis today.

Academic and Professional Career

since 2012	Distinguished Professor, University of California, San Diego (UCSD), USA
2001 - 2012	Distinguished Professor, University of California (UCR), Riverside, USA
1999 - 2005	Director, Laboratoire Heterochimie Fondamentale et Appliquée, Université Paul Sabatier, Toulouse, France
1988 - 1998	Research Director, Laboratoire de chimie de coordination (LCC-CNRS), Toulouse, France
1981 - 1988	CNRS (National Committee for Evaluation of the French Research () Researcher, Université Paul Sabatier, Toulouse, France
1980 - 1981	Research Associate, Sanofi-Recherche Company, Toulouse, France
1979	PhD, Université Paul Sabatier, Toulouse, France
since 1975	CNRS Researcher, Université Paul Sabatier, Toulouse, France
1975	Degree in Engineering, École nationale supérieure de chimie de Montpellier (ENSC), Montpellier, France

Functions in Scientific Societies and Committees

since 2010	Member, Editorial Advisory Board, Chemistry Letters
since 2010	Member, Editorial Advisory Board, Chemical Science (Chem.Sci)
since 2010	Member, Editorial Advisory Board, Nature Communications
since 2010	Co-Editor, Chemical Reviews (Chem.Rev.)
2009	Adhoc Member, Study Section "Synthetic and Biological Chemistry" (SBCB), National Institute of Health (NIH), USA
since 2006	Member, Editorial Board, Chemistry – An Asian Journal
2005	Adhoc Member, SBCB, NIH, USA
since 2002	Member, Editorial Board, European Journal of Inorganic Chemistry
1999 - 2010	Regional Editor, Journal of Organometallic Chemistry
1999 - 2002	Member, CNRS, France
since 1999	Member, American Chemical Society (ACS), USA
since 1998	Member, Editorial Board, Comptes rendus de l'Académie de Sciences
1996 - 2005	Member, Editorial Board, Topics in Stereochemistry
since 1989	Member, Editorial Board, Chemical Reviews
since 1989	Member, Editorial Board, Heteroatom Chemistry

Project Coordination, Membership in Collaborative Research Projects

since 2012	Director, UCSD-CNRS Joint Research Laboratory, University of California San Diego, San Diego (UCSD), USA
2001 - 2012	Director, UCSD-CNRS Joint Research Laboratory, University of California Riverside, Riverside, USA
2000 - 2001	Member, Conseil Scientifique du département Sciences Chimiques, CNRS, France
1999 - 2003	Member, Comité National d'Evaluation de la Recherche (CNER)

Honors and Awarded Memberships

since 2023	Member, German National Academy of Sciences Leopoldina, Germany
2022 - 2023	Fellow, Hagler Institute for Advanced Study, Texas A&M University, Houston, USA
2020	Grand Prix de la Maison de la Chimie, Fondation de la Maison de la Chimie, Paris, France

2017	Sacconi Medal, Italian Chemical Society, Italy
2016	Sir Geoffrey Wilkinson Award, Royal Society of Chemistry (RSC), UK
2015	Senior Humboldt Research Award, Re-Invitation, Alexander von Humboldt Foundation, Bonn, Germany
2014	ACS Inorganic Chemistry Award, ACS, USA
2013	Chevalier de la Legion d'Honneur, Légion d'honneur (Legion of Honor), France
2010	Grand Prix Le Bel, French Chemical Society (SCF), France
2009 - 2010	Sir Ronald Nyholm Lectureship, Royal Society of Chemistry (RSC), UK
since 2006	Fellow, American Association for Advancement of Science (AAAS), USA
seit 2004	Member, French Académie des sciences, France
since 2003	Member, European Academy of Sciences (EURASC)
since 2002	Member, Academia Europea
since 2000	Member, Académie des technologies, Paris, France
1998	Médaille d'Argent, CNRS, Paris, France
1994	German-French Humboldt-Research Award, Alexander von Humboldt Foundation, Bonn, Germany

Research Priorities

Guy Bertrand is a French chemist, who achieved significant progress with the synthesis of very reactive molecules. His research group combined an experimental approach with quantum-mechanical calculations to draft new compounds. With those, the scientist addresses the high cost and the toxicity of transition metal complexes that are widely utilized in catalysis today.

Already in 1988, Guy Bertrand achieved a tremendous scientific accomplishment: the discovery of the first stable carbene, a phosphino-silyl-carbene, where the carbene is stabilized by neighbouring phosphorus and silicon atoms. Carbenes are instable and highly reactive compounds of bivalent carbon. Guy Bertrand's model substance propelled the chemistry of carbenes from the margins into an active field of research.

Guy Bertrand made numerous pathbreaking discoveries that propelled the understanding of carbenes. During the synthesis of novel substances, his team prepared unusual compounds, whose electronical structure, stability, and reactivity was subsequently quantum-chemically calculated. A comparison of the determined qualities with experimental observations enabled the scientist to optimize their models. Thus, the researchers were able to synthesize substances with characteristics

that hitherto only transition metals displayed. Because those compounds are expensive and often toxic, the new carbenes enabled less problematic applications in many fields.

The chemist works in numerous ways to employ the possibilities of chemistry to face current challenges – be it in medicine, energy generation, or with environmental problems.