



Newsletter 4 – 2018

Dear Academicians,

We have the pleasure to announce the Leonardo da Vinci Award and Blaise Pascal Medallists 2018.

Leonardo da Vinci Award

Professor Sir John Ball

Through a research career spanning more than 45 years, Professor Ball has made groundbreaking and highly significant contributions to the mathematical theory of elasticity, the calculus of variations, and the mathematical analysis of infinite-dimensional dynamical systems. In recognition of his services to science in 2006 he was knighted in The Queen's New Year Honours list. He is a Fellow of the Royal Society of Edinburgh (elected 1980), Fellow of the Royal Society (elected 1989), Associé Etranger, Académie des Sciences, Paris (elected 2000), Foreign Member of the Instituto Lombardo (elected 2005), Foreign Member of the Norwegian Academy of Sciences and Letters (elected 2007), Honorary Member of the Edinburgh Mathematical Society (elected 2008), Member of the Academia Europaea (elected 2008), and Fellow of the American Mathematical Society (elected 2012). He is the recipient of Honorary Degrees/Honorary D.Sc.'s/Honorary Fellowships from EPFL Lausanne (1992), Heriot-Watt University (1998), University of Sussex (2000), Université Montpellier II (2003), University of Edinburgh (2005), St John's College Cambridge (2005), and Université Pierre et Marie Curie, Paris (2010). His contributions to science have been recognised by a number of international prizes, including the 1999 Theodore von Kármán Prize, and most recently the 2018 King Faisal International Prize in Mathematics.

Professor Ball has also played a significant role internationally in supporting Mathematics. He was a member of the first Abel Prize Committee in 2002 and the Fields Medal Committee in 1998. From 1996-98 he was President of the London Mathematical Society, and from 2003-06 he was President of the International Mathematical Union, IMU. Professor Ball is listed as an ISI highly cited researcher.

Professor Ball's career has been a shining light in world mathematics, spanning both pure and applied areas. The European Academy of Sciences is therefore proud to present the Leonardo da Vinci Award to Professor Sir John Ball.

Blaise Pascal Medallist in Chemistry

Professor Avelino Corma

In recognition of his outstanding achievements in materials design and heterogeneous catalysis and for bridging the gap between fundamental science and industrial applications

Prof. Avelino Corma is a world leader in materials design and heterogeneous catalysis where his achievements have not only pioneered new research avenues but have a direct impact on industrial applications. His new concepts and their applications to a broad range of major chemical reactions have given rise to ca. 150 patents and have attracted the attention of numerous chemical companies; ten industrial processes are applied today worldwide, with important environmental and social benefits. For example, an industrial application based on his research on gold clusters and nanoparticles in solution and supported on well-defined nanoparticle supports with atom vacancies aiming at decreasing the sulphur content in natural gas is now used in more than 15 plants worldwide. He has also been a pioneer in the development of hierarchical micro-mesoporous materials, building well-controlled three-dimensional structures incorporating catalytically active sites, leading to materials and reaction selectivities close to those of enzymes.

Avelino Corma's research has given rise to more than 1000 publications, and his numerous national and international awards clearly recognize him as a truly outstanding scientist, who has been impressively successful at combining excellence in fundamental science with the capacity to develop industrial applications resulting in a greener chemistry by saving energy and avoiding or eliminating residues.

Blaise Pascal Medallist in Earth and Environmental Sciences

Professor Carlos Duarte

In recognition to his contributions to Oceanography and to address environmental problems

Prof. Carlos Duarte is a world-wide leader in multiple branches of biological oceanography and marine ecology. He is probably the most versatile aquatic ecologist of his generation: he works from the tropics to polar ecosystems, from macrophytes to microbes, from coastal systems to open ocean gyres using all type of approaches. His pioneering work on seagrasses and other vegetated systems

eventually lead – in collaboration with different UN agencies - to the development of “blue carbon” strategies for climate change mitigation and adaptation, which has provided a strong impetus to the conservation of vegetated coastal ecosystems adopted by hundreds of programs and projects around the world. Prof. Duarte received many awards to scientific excellence, and inspired hundreds of research programs, being author of 660 peer-reviewed papers and more than 60 books or book chapters. His research is characterized by independence, creativity, serendipity and interdisciplinary linking, as well as the capacity to organize and collaborate with large interdisciplinary teams.

Blaise Pascal Medallist in Engineering

Professor Emmanuel Gdoutos

In recognition of his outstanding and seminal contributions in Engineering Mechanics and, in particular, in Fracture Mechanics and Experimental Mechanics

Professor Emmanuel E. Gdoutos is an eminent and reference personality within the World Community of Engineering Sciences. He has taught in different important, Universities, both in Europe and US. His relevant and seminal studies on Experimental Mechanics and Fracture Mechanics are very well-known and have been published in famous text books. His career is characterized by innumerable recognitions and awards. He was the President of different major Scientific Societies and the organizer and chair of outstanding events. Professor Gdoutos has been the first Head of Engineering Division of EurASc.

Blaise Pascal Medallist in Materials Science

Professor Paolo Samori

In recognition of his outstanding contributions to the development of functional nanomaterials and nanodevices exhibiting new electronic, optical and sensing capabilities

Professor Paolo Samori is Distinguished Professor at the University of Strasbourg (France). He is also Director of the « Institut de Science et d'Ingénierie Supramoléculaires » (ISIS) and of the Nanochemistry Laboratory. His work opened new chemical frontiers at the nanoscale by exploiting the combination of sophisticated fabrication and characterization nanotools and the principles

of supramolecular chemistry to develop structurally controlled functional nanomaterials and nanodevices capable of exhibiting a large variety of electronic, optical and sensing capabilities. His contributions led to the foundation of the transition from supramolecules to suprafuctions and to the development of new multifunctional nanomaterials for organic optoelectronics, sensing and energy applications. Prof. Samorì is Fellow of the Royal Society of Chemistry and of the European Academy of Sciences. He was awarded numerous prestigious prizes including an ERC Starting Grant (2010), the CNRS Silver Medal (2012), the « Catalán-Sabatier » Prize and the « Grignard-Wittig » Lectureship (2017). He participated as Coordinator or Principal Investigator in several EU projects and training networks, such as the MSCA ITN « iSwitch » and the Graphene Flagship.

Blaise Pascal Medallist in Mathematics

Professor Alice Guionnet

An influential probabilist and inspiring leader in the field of random matrices

Professor Alice Guionnet is an inspiring leader in the field of probability and random matrices. She has established surprising links with various other fields of mathematics as spectral theory, operator algebra, free probability which lead her to several outstanding results. Her "single ring theorem" is a real masterpiece of analysis. But the most important contribution of Alice Guionnet might be a series of work where she founds the theory of "Matrix Models". She has received a number of prestigious invitations, showing her impressive impact beyond the probability theory. After being an invited speaker at the International Congress of Mathematician, and at the International Congress of Mathematical Physics, she was elected in 2017 at the french Academy of Sciences.

Blaise Pascal Medallist in Physics

Professor Peter Hänggi

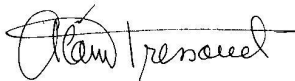
In recognition of his pioneering and lasting contributions on the beneficial role of fluctuations in statistical mechanics in and away from thermal equilibrium

Professor Peter Hänggi presents a most visible flagship that changed our perception of noise. He has developed the theoretical tools to study classical and quantum Stochastic Resonance by which ambient noise is used to boost weak signals/information rather than hampering those. He also is the founder of

the area of “Brownian motors”, i.e. Brownian noise fueled devices, which in combination with non-equilibrium forces shuttle, separate and direct cargo on micro- and nanoscales. In addition, he is well known for his outstanding pivotal developments to relativistic thermodynamics and to the foundations of quantum thermodynamics. His oeuvre is extremely broad (over 600 publications), which is acknowledged internationally via his election to several scientific academies, being recipient of several prizes and him holding 10 *doctor honoris causa degrees*, among scores of other prestigious accolades.

We congratulate all the Awardees of the year 2018.

Sincerely yours,



Alain Tressaud
President



Hélène de Rode
Perpetual Secretary

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