



GENCI

Press release

Extreme Computing : The 2015 Bull-Joseph Fourier Prize rewards R&D that brings solid and immediate profit in the fields of medicine and materials.

- Laureates of the 2015 Bull-Joseph Fourier demonstrate the importance of computer simulation in key sectors of society.
- In medicine, thanks to digital simulation the implementation of ultrafast diagnoses of strokes can save lives.
- For material design, digital simulation enables a new “material-by-design” approach.

Paris, 12 April 2016 - The 2015 Bull-Joseph Fourier Prize was awarded to two teams for their significant contribution to the advancement of awareness of science and innovation and to the development of simulation methods. It was awarded by Catherine Rivière, President and CEO of GENCI and by Philippe Vannier, Executive Director, Big Data and Security and Director of Technology at Atos, before a large audience of representatives of the French scientific community.

Fruit of the collaboration between Atos and GENCI, the goal of the Bull-Joseph Fourier Prize is to contribute to the accelerated development of computer simulation in France and to establish a broad ecosystem bringing together computing centres, research laboratories and European industry.

2015 Bull-Joseph Fourier - First Prize : Saving human lives with accelerated stroke diagnoses.

For their innovative work integrating high-performance computing with medical imagery, **the 2015 Bull-Fourier First Prize** was awarded to the team of **Frédéric Nataf**, Research Director at CNRS, **Professor Frédéric Hecht**, and **Pierre-Henri Tournier** Postdoc at Laboratory J.-L. Lions of the Université Pierre et Marie Curie, Project Alpines-INRIA ; **Victorita Dolean**, Reader at Department of Mathematics and Statistics of University of Strathclyde (Glasgow, UK) and Laboratoire J.-A. Dieudonné at the Université de Nice-Sophia Antipolis; **Pierre Jolivet**, CNRS Researcher at IRIT-ENSEEIH, Toulouse.

The 2015 Bull-Joseph Fourier First Prize rewards research that is likely to aid in saving human lives. Conducted in collaboration with the medical imaging company, EMTensor, these simulation studies demonstrate the feasibility of an innovative imaging technique based on microwaves allowing differentiation, in less than 15 minutes, between the two types of stroke (ischemic or hemorrhagic) and are usable from patient intake and throughout hospital care. These two points are crucial: speed of detection and characterisation of a stroke are critical to the care and survival of the patient. These simulations are possible through the power of supercomputers, new algorithms and rapid development.

2015 Bull-Joseph Fourier Second Prize : Revolutionising the development of new materials.

Receiving the **2015 Bull-Joseph Fourier Second Prize**, was the team of **Antoine Levitt**, Head of Research at INRIA and **Marc Torrent**, Principal Investigator at the Commissariat à l'Energie Atomique et aux Energies Alternatives (Alternative Energies and Atomic Energy Commission).

Creation of new materials without recourse to experience, and prediction of their properties, using powerful simulation techniques of their electronic structure, this is what the research awarded the 2015 Bull-Joseph Fourier Second Prize will enable. By parallelising the " ABINIT " software widely used in the research world, and enabling it to take advantage of the power of extra large supercomputers, which it could not do before, the group awarded had thus paved the way for material-by-design »: defining new materials that meet precise specifications, through the provision of a very large material properties prediction database, rather than through experiments that are often long, costly and hazardous. This touches on all sectors requiring innovative materials : aeronautics, chemistry, health and many more.

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About the Bull-Joseph Fourier Prize

Each year, the Bull-Joseph Fourier Prize recognises the work of research, academic and industrial teams in the fields of computer simulation and high-performance computing in France. Designed by Bull, the hardware and software brand of the Atos Group, in association with GENCI (Grand Equipement National de Calcul Intensif), the Bull-Joseph Fourier Prize awards 15,000 Euro to the first place winner and dedicated time on the GENCI supercomputers for second place.



With this prize, Bull and GENCI encourage the development of computer simulation and the treatment of massive amounts of data as found in domains such as scientific research and industrial applications. These techniques play a determinant role in Europe's ability to be at the forefront of research and innovation and to remain internationally competitive.

The prize pays homage to mathematician Joseph Fourier whose work in the 18th century largely contributed to the mathematical modelisation of physical phenomena. Joseph Fourier conducted the majority of his scientific studies in Paris and Grenoble, providing the mathematical tools essential to the modelisation of physical phenomena.

The first Bull-Joseph Fourier Prize was awarded in 2009.

Founding the Bull-Fourier Prize for Computer Simulation, in association with GENCI, Bull, whose creator Fredrik Rosing Bull developed the first statistics computers and who, in 1919, was a pioneer in the technological independence of Europe, pays homage to a great scientist whose work is still widely used in the world of computer simulation. For more information: www.prix-bull-fourier.fr

About GENCI

Created in 2007 by the French public authorities, GENCI is aimed at placing France among the leading countries within Europe and on the international stage in terms of HPC. In this context, GENCI has three missions:

- To implement the French national strategy by equipping in HPC resources the three national computing centres in support of scientific research;
- To contribute to the realisation of an European integrated HPC ecosystem;

- To promote numerical simulation and HPC within the academic and industrial research communities.

GENCI is a civil society under French law, 49% owned by the State represented by the ministère de l'Éducation nationale de l'Enseignement supérieur et de la recherche, 20% by the CEA, 20% by the CNRS, 10% by the Universities represented by the Conférence des Présidents d'Université and 1% by Inria. www.genci.fr

About Atos

Atos SE (Societas Europaea) is a leader in digital services with pro forma annual revenue of circa EUR 12 billion and 100,000 employees in 72 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cyber-security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defense, Financial Services, Health, Manufacturing, Media, Utilities, Public sector, Retail, Telecommunications, and Transportation. Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline.

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