

Call for applications “Grand Prix scientifique” 2015 Simone and Cino del Duca Foundation

Every year, alternatively under the disciplines of the two divisions⁽¹⁾ of Academy of Sciences, the Simone and Cino del Duca Foundation of the Institut de France awards a scientific prize based on the recommendations of a jury of members of the Institut de France. The Grand Prix will be awarded to a French or European scientist and his/her team⁽²⁾ that will propose an ambitious research project on promising theme :

In 2015, the theme retained for the 1st division is **“General relativity from the macrocosm to the microcosm : experimental tests, geolocalisation, gravitational waves, black holes, quantum gravitation,...”**

General Relativity Theory was discovered by Einstein in November 1915. One century after his discovery, this theory is more alive than ever. It plays a key role in immense domain of nature, from the macrocosm to the microcosm. Many things discovered or requested by modern astrophysics (pulsars, black holes, gravitational waves....) come within this theory. General relativity has been and still subject to experimental tests probing: The principle of equivalence, relativistic effects in the solar system, radiative effects in the binary pulsars, etc. Today, this theory is embedded crucially in modern techniques of geolocalisation. Current theoretical trials (in particular, the string theory) for describing quantum aspects of gravitation, and unify all forces of nature, suggesting that general relativity plays a crucial role at the microscopic level: in particular at scale factors of Planck length. These include examples of problems unresolved combining general relativity and quantum theory, microscopic interpretation of black holes entropy and the value of cosmological constant. The “Grand Prix” del Duca 2015, will reward to a French or European researcher, and his team, making an ambitious project, where general relativity plays a central role over all promising topic like those mentioned above. This topic could be experimental or theoretical, and involved the microcosm and the macrocosm.

The prize is as follows:

- a) 200,000 € to finance the work of the award-winning group,
- b) 25,000 € awarded to the director of the research group,
- c) 50,000 € (maximum amount paid on supporting) towards the hiring of one or more French or foreign postdoctoral researchers to be selected by the group director, in the two years following the award of the prize. An agreement will be established between the laboratory and the Foundation del Duca to define the conditions of payment.

The applications must be sent on line not later than Thursday, January 22, 2015 to the following electronic address:

<http://prix.academie-sciences.fr>

For further information, you can consult this call for application on the website of the French Academy of sciences at the adress below:

http://www.academie-sciences.fr/activite/prix/gp_duca.htm

⁽¹⁾ 1st division: Mathematics; Physics; Sciences of the Universe; Mechanical and Computer Sciences.

2nd division: Chemistry; Molecular and Cellular Biology, Genomic; Integrative Biology; Human Biology and Medical Sciences.

⁽²⁾ The research team isn't necessarily the administrative team. The team members don't necessarily work in the same laboratory. It should clearly be specified in the application, the role of each member of the team.

The files should be **written in English** and possibly in French.

The applications must contain:

- 1) the application form,
- 2) an executive summary (title of the project, abridged CV of the project head, main past scientific achievements and a short description of the research proposal, a list of 10 major publications) (2-3 pages),
- 3) a cover letter signed by the head of the team,
- 4) the complete CV of the head of the team (2-page maximum),
- 5) an abridged CV of team member,
- 6) description of results obtained by the team (5-page maximum),
- 7) a description of the research proposal and the intended use of the Grand Prix (3-5 pages),
- 8) a letter of recommendation or sponsorship of a international scientist of renown.

The deadline for submissions is **Thursday, January 22, 2015**.

Applications will be examined by a jury composed of members of the Academy of Sciences and of members of other academies belonging to the Institut de France. The jury will seek the opinion of French and foreign experts.

The Grand Prix will be awarded at the Institut de France, under the Dome, **on Wednesday, June 3, 2015**.

For administrative questions, please contact :

The Simone and Cino del Duca Foundation of the Institut de France

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Electronic address: juliette.nollet@fondation-del-duca.fr

For technical and scientific questions, please contact our :

Academy of Sciences

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<p>Cino del Duca Grand Prize for Science – Previous Years in the areas covered by this call of applications for the 1st division</p>
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2005: Pr Massimo INGUSCIO, Professor at the University of Florence for his works on research on degenerate fermionic gases.

2007: Pr Jacques PROST, General Director of the Industrial Physics and Chemistry Higher Educational Institution of Paris and **Pr Jean-François JOANNY**, Director of the Unit of Physical Chemistry, UMR 168 CNRS- Curie Institute, for their research works on the theme “Concepts and physical techniques implemented in the following: process studies on molecules of the living”.

2009: Pr Michael HARRIS, Professor of mathematics at Denis Diderot University in Paris for his research works on automorphic representations and Galois representations.

2011: Pr Romain TEYSSIER, Professor at the University of Zürich and Head of the Computational Astrophysics group in CEA Saclay, for his works on numerical simulations in astrophysics.

2013: Pr Michel CAMPILLO, Professor at Joseph Fourier University of Grenoble, researcher at the institute of earth sciences in Grenoble, for his work on environmental noise for imaging earth structures and monitor their changes over time.