

DOCTORAL INPhINIT FELLOWSHIPS PROGRAMME – INCOMING - CALL 2022

PhD POSITION IN “MATHEMATICAL ANALYSIS AND DIFFERENTIAL EQUATIONS: DIFFERENTIAL EQUATIONS AND APPLICATIONS I” AT THE ICMAT FOR THE INPhINIT PROGRAMME

Job Position title: PhD in Mathematical Analysis and Differential Equations: Differential Equations and Applications I

Research project/ group description

ICMAT RESEARCH GROUP B: MATHEMATICAL ANALYSIS AND DIFFERENTIAL EQUATIONS

Mathematical Analysis and Partial Differential Equations are very active, deeply interrelated fields of research with a preponderant position within the mathematical sciences. This line deals with fundamental problems in the fields of harmonic analysis, partial differential equations, geometric group theory, functional analysis, geometric measure theory, operator algebra, differential geometry and probability, and has been awarded with a total of 7 ERC grants.

The main research lines may be grouped into the following general directions:

- **Mathematical Analysis:** This subline focuses on classical problems around the Keakeya conjecture and Bochner-Riesz multipliers, the Schrödinger and wave equations, elliptic PDE in rough domains and connections with geometric measure theory, harmonic analysis and geometric group theory for nonamenable groups, classical and abstract Calderón-Zygmund theory and problems around the invariant subspace problem. Other fields such as operator theory, geometry of Banach spaces, complex analysis, quantum probability and analytic number theory are also well represented.
- **Differential Equations and Applications:** This subline studies differential equations arising in fluid mechanics, spectral theory, mathematical physics and mathematical biology. This is an interdisciplinary subject, with significant applications to engineering, biology and physics.

The group is formed by the following faculty members:

J.M. Arrieta, D. Azagra, M. Bonforte, F. Borondo, Á. Castro, F. Chamizo, D. Córdoba, A. Enciso, D. Faraco, E. Gallardo, M. M. González, M. Mañas, J.M. Martell, J. Munarriz, R. Orive, J. Parcet, F. Quiros, A. Rodríguez, K. Rogers, A. Ruiz, P. Tradacete, D. Yakubovich.

Job position description

The PhD candidate will be involved in work related to one of the research topics in which the group is particularly active: fluid mechanics, dispersive equations, nonlinear wave equations, inverse problems, free boundary problems.

The PhD candidate will be appointed a supervisor among the faculty members of the Group, with whom regular meetings will be held. He/she will be expected to participate in the group activities including seminars and conferences, interacting with visitors and international colleagues. ICMAT will also provide counselling to help the PhD candidate develop a successful research career.



Research Group Contact: A. Enciso (aenciso@icmat.es) and A. Castro (angel_castro@icmat.es)

Research Group website:

ICMAT RESEARCH GROUP B: MATHEMATICAL ANALYSIS AND DIFFERENTIAL EQUATIONS:

<https://www.icmat.es/researchers/groups/group-b/>

Links to the INPhINIT 2022 Incoming Open Call:

Programme description: <https://fundacionlacaixa.org/en/educacion-becas/becas-la-caixa/doctorado-inphinit/descripcion-del-programa>

Application website: <https://candidate.lacaixafellowships.org/login>

Programme rules [here](#).

PhD position finder: <https://hosts.lacaixafellowships.org/finder>