



PhD in MODELLI E METODI MATEMATICI PER L'INGEGNERIA / MATHEMATICAL MODELS AND METHODS IN ENGINEERING - 41st cycle

THEMATIC Research Field: CAHN-HILLIARD DYNAMICS AND ITS APPLICATIONS

Monthly net income of PhDscholarship (max 36 months)
1400.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	Phase Separation is a key phenomenon in collective particles dynamics, where remarkably intricate patterns arise from multi-scale interactions. The prediction of this process is crucial in real-world applications, ranging from biomedicine to engineering, such as tumor cell growth and design of new materials. This project aims to significantly advance our understanding of Cahn-Hilliard (CH) models for Phase Separation with applications in Biology.
Methods and techniques that will be developed and used to carry out the research	Functional analysis, methods for elliptic and parabolic PDEs, calculus of variations, spectral analysis, dynamical systems Development of the ability to conduct independent research on the dynamics described by Cahn–Hilliard models, focusing on quantitative estimates of coarsening rates and longtime behavior of degenerate-mobility equations.
Educational objectives	Development of the ability to conduct independent research on the dynamics described by Cahn–Hilliard models, focusing on quantitative estimates of coarsening rates and longtime behavior of degenerate-mobility equations.
Job opportunities	
Composition of the research group	13 Full Professors 16 Associated Professors 7 Assistant Professors 0 PhD Students



Name of the research directors	Prof. Andrea Giorgini
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Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Educational activities (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): financial aid per PhD student per year 1st year: max 1.902,40 euros 2nd year: max 1.902,40 euros 3rd year: max 1.902,40 euros The PhD students are encouraged to take part in activities related to teaching, within the limits allowed by the regulations. 1 individual PC per student + several shared PC. Access to one cluster with 32 processors and 384 GB RAM, and to several multi-processor servers.