



# MARIE Skłodowska-CURIE INNOVATIVE TRAINING NETWORK

## OPEN CALL – PhD position



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH



### Host (recruiting) organisation

Ecole Centrale de Nantes, Nantes, France

**Project Title:** Nonlinear reduced computational mechanics

### Supervisory team

<b>Primary academic institution</b> Prof Francisco Chinesta Ecole Centrale de Nantes	<b>Industrial institution</b> Jean Louis Duval ESI
<b>Secondary academic institution</b> Prof Antonio Huerta Universitat Politècnica de Catalunya·BarcelonaTECH	<b>Second Industrial institution</b> Dominique Deloison Airbus Group Innovations

### Project description

Model order reduction for multi-parametric models has proven to be very effective; in particular, by considering those parameters as model extra-coordinates in the Proper Generalized Decomposition. Then, the parametric solution can be post-processed online in real time and in deployed computing platforms (tablets and smartphones). Two major challenges persist: (i) the solution of non-linear parametric models within the PGD framework and (ii) the consideration of online simulation involving too large trajectories. The aim of this project is, precisely, to study these challenges and to discern the viability to applied novel approaches in industry, in particular for simulating the thermo-mechanical models involved in online simulation of welding.

### Benefits

- Research supervision and training by recognised experts in computational mechanics from **industry** and **academia**
- Doctorate degree from both Ecole Centrale de Nantes and UPC·BarcelonaTECH
- 36 month full-time employment contract
- Additional mobility and family allowances
- Integration within 2 research groups of leading companies: aeronautics and software provider
- Training in transversal skills



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## Prerequisites

- To have a strong undergraduate and MSc degree (or equivalent) in Structure Engineering, Mathematics, and a good level of English
- To have an enthusiastic attitude to conduct research, being hard-worker and critic
- To demonstrate knowledge of some programming languages such as Matlab and Fortran
- To have some experience with Finite Element analysis

## Eligibility

Applicants shall, at the time of recruitment by Ecole Centrale de Nantes, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when a researcher obtained the degree, which would formally entitle him/her to embark on a doctorate, irrespective of whether or not a doctorate is or was ever envisaged.

At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in FRANCE for more than 12 months in the 3 years immediately prior to the reference date.

## Duration of the project

The total duration of the project is 36 months.

## Obligations of ESRs

- Completion of the Erasmus Mundus Joint PhD programme Simulation Engineering and Entrepreneurship Development (SEED)
- Be highly committed with quality research, training and management. The successful candidate is expected to become a future leader on the development and application of advanced computational methods for industry
- Take part of the mobility programme both in academia and industry
- Participate on the dissemination and outreach activities associated to the project
- Attend international conferences and present the research undertaken
- Contribute to the writing of articles in high impact international journals

## Closing date

March 31, 2016

## How to apply

[www.lacan.upc.edu/AdMoRe](http://www.lacan.upc.edu/AdMoRe)

## Questions

[admore.itn@upc.edu](mailto:admore.itn@upc.edu)