

<b>Position</b>	ESR1.1		
<b>Title</b>	Partitioning and optimisation-based non-centralised control of dynamical energy grids		
<b>Centre</b>	Universitat Politècnica de Catalunya (UPC, <a href="http://www.upc.edu">www.upc.edu</a> )		
<b>Location</b>	Barcelona		
<b>Start date</b>	1 July 2016	<b>Duration</b>	36 months
<b>Closing date for applications</b>	6 March 2016		
<b>Communications of results</b>	15 May 2016		

## Job description

### Individual Research Project

The objective of this Individual Research Project is to investigate, propose and design alternative topologies and control schemes from a non-centralised perspective for distributed power generation systems with the aim of getting smaller subsystems and coordinating their management via supervisory techniques based on optimisation of global criteria.

### Tasks

- Exploring techniques for partitioning the entire system in order to avoid performance degradation when uncertainties and disturbances are taken into account.
- Studying and evaluating the use of alternative topologies and control schemes for large-scale complex energy grids from a non-centralised perspective.
- Designing supervisory techniques based on optimisation of global criteria for the management and control of non-centralised energy networks.

### Career

In Marie Skłodowska-Curie Actions, ESRs are paid a competitive salary, including a Mobility Allowance and a Family Allowance (subject to family situation). The successful candidate will be working on an Individual Research Project (IRP) at the UPC (Automatic Control Department, ESAII) and will have secondments related to their research at Università di Bologna (UniBo, [www.unibo.it](http://www.unibo.it)) and GE Global Research (GE, [www.ge.com/research](http://www.ge.com/research)). She/he will be enrolled in a UPC PhD programme and conduct the research corresponding to the IRP at the UPC as part of her/his thesis. Tuition fees will be covered by the fellowship and the network will also support training activities and periodical events, which will allow the ERSs to develop their career in a multi-sectorial environment and to obtain a wide knowledge on the control of electrical networks.

### PhD Programme

The successful candidates will be enrolled in the PhD programme in Automatic Control, Robotics and Computer Vision at UPC ([www.ioc.upc.edu/students/darv](http://www.ioc.upc.edu/students/darv)).

### Supervisor

Carlos Ocampo-Martinez ([www.iri.upc.edu/people/cocampo](http://www.iri.upc.edu/people/cocampo))

## Planned secondments (compulsory)

The ESR will perform secondments at UniBo (Bologna, Italy) and GE (Munich, Germany), which will be less than 30% of the total employment time.



## Eligibility conditions

1. The candidate must not have resided or carried out his/her main activity (work, studies, etc.) in **SPAIN** for more than 12 months in the 3 years immediately prior to his/her recruitment under the project (short stays such as holidays are not counted).
2. The candidate must be within 4 years of the diploma granting you access to doctorate studies at the time of recruitment and has not yet been awarded the doctorate degree.
3. The candidate may be of any nationality.
4. The candidate must work exclusively for the project during the employment contract.
5. The candidate must fulfil the conditions to be admitted in the PhD programme in Automatic Control, Robotics and Computer Vision at UPC.

**These conditions must be fulfilled at the starting date of the contract. The starting date for each position is tentative.**

## General requirements

### Education Degree

To be eligible for the PhD programme in Automatic Control, Robotics and Computer Vision at UPC, the candidate must be in any of the following circumstances:

1. Individuals holding an official university degree from Spain or any other country in the European Higher Education Area that qualifies holders for master's degree courses, provided they have also completed a minimum of 300 ECTS credits of official university coursework overall, of which at least 60 must be at the master's degree level.
2. Individuals holding a degree from a foreign education system, providing that it can be shown that the university in question offers a level of training equivalent to that of the official Spanish master's degree and that, in the issuing country, individuals holding the degree in question are eligible for doctoral degree courses.

### Qualifications

Preference will be given to candidate with a master degree (or equivalent) in Automatic Control, Energy, Mechanics, (Applied) Mathematics or other relevant disciplines.

### Language(s)

- **English:** Good communication skills both oral and written.
- **Spanish/Catalan:** Basic level (desirable).

### Experience

Desirable background in:

- Optimisation
- Mathematical modelling of dynamic systems
- Differential/difference equations
- Energy systems

### Skills

- Strong motivation to pursue a PhD degree.
- Ability to work independently and as part of a team.



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- Excellent skills in writing and presentation.
  - Highly motivated with the ability to set and meet deadlines appropriate to the progress of the project.
  - Willingness to interact closely with the INCITE partners.

## Job details

<b>Gross salary</b>	Between €33900 and €38600 annual depending on the family situation (Amounts subject to taxation according to Spanish law). The position covers tuition fees and other training expenses.
<b>Duration</b>	36 months
<b>Type of contract</b>	Full-time
<b>Hours per week</b>	37.5 hours
<b>Place of work</b>	Institut de Robòtica I Informàtica Industrial, CSIC-UPC, Llorens I Artigas, 4-6, 08028 Barcelona ( <a href="http://www.iri.upc.edu/">www.iri.upc.edu/</a> )
<b>Province/State</b>	Barcelona
<b>Local language</b>	Catalan/Spanish
<b>Country</b>	Spain

The contract will be subject to the regulations of the Marie Skłodowska Curie Innovative Training Network Fellowships of the European Commission and in accordance with the work contract regulations of Spain.

## Selection criteria

The evaluation committee will take into consideration the academic records, research experience, publications, letter of motivation and scientific references. After the first selection stage, the top five candidates will be invited to perform a remote interview via video conference. **Equal consideration will be given to female and male applicants.**

## Applications

All applications must include:

1. The **application form** (INCITE template).
2. A detailed **CV**, including list of publications, a Master thesis summary and the names of two referees (name, title, affiliation, e-mail and telephone number(s)) who are willing to provide detailed recommendation letters about the candidate (INCITE template).
3. One **motivation letter** for each position applied for (INCITE template).
4. **Copies of academic transcripts and degree certificates**, in English.

All applications must be submitted by means of on-line application on the official website of INCITE - [www.incite-itn.eu](http://www.incite-itn.eu) using the templates available in the website.

For further information: [coordinator-incite@irec.cat](mailto:coordinator-incite@irec.cat).

