

Position	ESR4.1		
Title	Integrated simulation and design optimization tools		
Centre	Universita di Bologna (UniBo, www.unibo.it)		
Location	Bologna, Italy		
Start date	1 November 2017	Duration	until 30/11/2019
Closing date for applications	1 October 2017		
Communications of results	16 October 2017		

Job description

Individual Research Project

The objective of this Individual Research Project is to propose an optimization approach specifically conceived for the coordination of power outputs of intermitted energy production units (e.g. photovoltaic units), storage units and consumption. Moreover, the project aims at analysing the effectiveness of vehicle-to-grid (V2G) services that may be provided by parking lots equipped with several charging stations. The approach can be tested by using a detailed simulation environment of the power network that has been interfaced with both a simulator of the communication network and a simulator of the urban traffic with electric vehicles. The project is also expected to analyse the effects of the proposed control approach, together with the dynamic reconfiguration of the power network, on expansion planning results.

Tasks

- Development of optimization algorithms for distributed generations (DGs) and storage units (including V2G services), embedded in a power distribution network.
- Implementation of these algorithms in a simulation environment in order to assess the performances in several operating conditions.
- Development of models able to show the advantages of the algorithms, as well as the dynamic reconfiguration of the network, on the expansion planning of the network.

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 UniBo (Department of Electrical, Electronic and Information Engineering, DEI) and will have secondments related to their research at Universitat Politècnica de Catalunya (UPC, www.upc.edu) and Efacec Energia (Efacec Energia, www.efacec.com). She/he can be enrolled in a UniBo PhD programme and conduct the research corresponding to the IRP in the DEI of UniBo as part of her/his thesis. In case of enrolment in the PhD program, for the duration of the INCITE project, tuition fees will be covered by the fellowship and the network will also support training activities and periodical events, which will allow the ERS 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 candidate would be enrolled in a PhD programme of the Department of Electrical, Electronic and Information Engineering (DEI) at University of Bologna - Italy (www.dei.unibo.it).

Supervisor

Carlo Alberto Nucci (<https://www.unibo.it/sitoweb/carloalberto.nucci/en>)



Planned secondments (compulsory)

The ESR will perform secondments at UPC (Barcelona, Spain) and Efacec Energia (Porto, Portugal), 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 **ITALY** 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, in case he/she would apply to the PhD program, must fulfil the conditions to be admitted in the PhD programme at University of Bologna.

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

General requirements

Education Degree

To be eligible for the PhD programme at the University of Bologna, the candidate -in case he/she would apply to the PhD program- must hold before the PhD programme start date (November 1st, 2017) an academic Master's degree comparable to the Italian degrees recognised as suitable for the admission to doctoral programmes in Italy (i.e., laurea specialistica or magistrale - 3+2 years or combined degree Bachelor + Master).

Qualifications

Preference will be given to candidate with a master degree (or equivalent) in Electrical Engineering, Systems and Control Engineering or other relevant disciplines.

Language

English: Good communication skills both oral and written.

Experience

Desirable background in: Electric power systems.

Skills

- Strong motivation to carry out the IRP.
- Ability to work independently and as part of a team.
- Skills in report writing.
- Willingness to interact closely with the INCITE partners.



Job details

Gross salary	In compliance with the rules of the ITN-MSCA, as foreseen in the Marie Skłodowska-Curie Actions Work Programme 2014-15 (gross amounts subject to taxation and with full social security and fiscal coverage, as foreseen by the Italian national legislation) between € 3918 and € 4418 per month depending on the family situation. The gross amount of the allowances includes the salary, the mobility allowance and a family allowance if eligible. The position covers tuition fees and other training expenses.
Duration	Until 30 November 2019
Type of contract	Full-time
Hours per week	40 hours
Place of work	University of Bologna, Department of Electrical, Electronic and Information Engineering, Viale Risorgimento, number 2, 40136 Bologna, Italy
Province/State	Bologna
Local language	Italian
Country	Italy

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 Italy.

Selection criteria

Selections are based on a first evaluation of qualifications. After the first selection stage, the top five candidates will be invited to 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 using the templates available in the website.

For further information: coordinator-incite@irec.cat.

