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| **Fellow**  | **Host Institution No.1:** University of Seville**Host Institution No.2:** SoftInWay | **Country:** Spain**Country:** Switzerland |
| DC7 | **Supervisor (academic):** Prof. David Sánchez Martínez**Supervisor (industrial):** Dr. Eugenio Rossi | **WP No:** 2 |
| **Title:** Dynamic operation of sCO2 power generation systems under variable load and variable energy input |
| **Research Objectives:** (1) To develop a dynamic model to simulate transient operation of the sCO2 power generation system. (2) To validate the developed dynamic model based on existing experimental data and verified analytical models of components at system level. (3) To evaluate the robustness of sCO2 power systems at the megawatt scale in responding to load variations and emergency trips. (4) To assess the impact of transient operation on the mechanical integrity of critical components. |
| **Mobility rules (eligibility of applicants)**: more information [here](https://marie-sklodowska-curie-actions.ec.europa.eu/actions/doctoral-networks)* Researchers funded by Doctoral Networks should comply with the mobility rules: in general, they must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting organisation for more than 12 months in the 36 months immediately before their recruitment date[[1]](#footnote-1).
* In addition, they:
	+ must not have a doctoral degree at the date of their recruitment.
	+ can be of any nationality.
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| **Applicant - specifications:** in addition to thegeneral specifications (eligibility criteria) listed above, the applicant must feature the following requirements:* **Earned degree:**
	+ MSc in Mechanical or Aerospace Engineering (or related area). Preference will be given to candidates with a major in energy or related areas
* **Background (mandatory):**
	+ Thermodynamics
	+ Power plant engineering (design and analysis)
	+ Simulation of thermal systems
	+ Matlab/Python programming
* **Additional background that will be valued in the selection process:**
	+ Optimisation techniques in engineering systems
	+ Transient simulation and analysis of energy systems
	+ Control engineering
	+ Turbomachinery design and analysis
	+ Fundamentals of rotordynamics
* **English language:**
	+ A certified C1 level of English is required
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| **Scheme:*** M1-M24: the applicant is employed by University of Seville
* M19-M24: the applicant is seconded to Doosan Skoda Power
* M25-M36: the applicant is employed by SoftInWay, without undergoing another selection process
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| **Locations (place of work):*** M1-M18: the applicant will be employed by University of Seville and located at the Department of Energy Engineering:

Escuela Técnica Superior de Ingeniería (ETSI) - School of EngineeringCamino de los descubrimientos s/n 41092 Seville (Spain)Google Maps: [link](https://goo.gl/maps/jhy8bhzXkN843dCt7)* M19-M24: the applicant will be seconded to Doosan Skoda Power:

Doosan Škoda Power s.r.o.Tylova 1/57, 301 28 Plzeň (Czech Republic)Google Maps: [link](https://goo.gl/maps/iHwyDPkcpMs6y1at8)* M25-M36: the applicant will be employed by SoftInWay

SoftInWay Switzerland GmbhBaarerstrasse 2, 6300 Zug (Switzerland)Google Maps: [link](https://goo.gl/maps/A5Sz5btkfLzSD7Lx5) |
| **Planned secondments:** DC7 is expected to carry out the following secondment:* Doosan Škoda Power: characterise transient operation and define safe operating maps of turbomachinery
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| **How to apply:** submit application package (see below) to Prof. David Sánchez ds@us.es before May 31st 2023, 17:00 h CET.The Application Package is comprised of:* CV Europass (<https://europa.eu/europass/en/create-europass-cv>)
* Letter of motivation
* *Analysis of the challenges faced by the energy sector to accomplish Carbon Neutrality by 2050, and the associated needs for technology development* (max 3 pages)
* Short video (less than 2min): *why I should be selected for the position*.
	+ D1: Why did you decide to apply for a position in ISOP?
	+ D2: What do you expect/want to gain from an MSCA programme?
	+ D3: How do you think you can add value to an MSCA programme?
	+ D4: Summarise your strengths and weaknesses.
	+ D5: Describe a time when you had to deliver a challenging project. What was your role and what was the outcome?
	+ D6: Where do you see yourself in 10 years?
	+ D7: Why should you be selected for the position?
* Letters of recommendation (not mandatory)
* The application package must not exceed 15 Mb
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| **Contract:*** Start date (estimate): September 2023
* Type: full-time exclusive
* Annual gross salary:
	+ University of Seville: € 34,128.59
	+ SoftInWay: € 53,676.00
* An additional (family) allowance is available for candidates who have family obligations (applied from and until this condition applies)
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| **Equal Opportunity Employers**:University of Seville and SoftInWay are Equal Opportunity Employers. We believe that no one should be discriminated against because of their differences, such as age, disability, ethnicity, gender, gender identity and expression, religion or sexual orientation. All employment decisions shall be made without regard to age, race, creed, colour, religion, sex, national origin, ancestry, disability status, sexual orientation, gender identity or expression, genetic information, marital status, citizenship status or any other basis as protected by European laws. |

1. This rule applies to the first contract only (University of Seville) [↑](#footnote-ref-1)