| Fellow | **Host Institution No.1:** CTU in Prague<br>**Host Institution No.2:** Nuovo Pignone Tecnologie Srl | **Country:** Czech R.<br>**Country:** Italy |
|---|---|---|
| DC5 | **Supervisor:** Prof. Václav Dostál<br>**Co-supervisor:** Dr. Marco Ruggiero | **WP No:** 2 |
| **Title:** Operation of power systems based on indirect supercritical Carbon Dioxide power cycles | | |
| **Research Objectives:** (1) To define the operational strategies of indirect (externally heated) cycles in off-design and high partial loads. (2) To assess the constraints set by the operational strategies on the design specifications of major equipment for each energy source considered: nuclear, WHR, CSP. (3) To define the exceptional operating procedures of indirect sCO2 power cycles: start-up, shutdown, emergency shutdown (tri: Market up). | | |
| **Mobility rules (eligibility of applicants)**: more information here<br>• 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].<br>• In addition, they:<br>  ○ must not have a doctoral degree at the date of their recruitment.<br>  ○ can be of any nationality. | | |
| **Applicant - specifications:** in addition to the general specifications (eligibility criteria) listed above, the applicant must feature the following requirements:<br>• **Earned degree:**<br>  ○ MSc in Mechanical Engineering (or related area). Preference will be given to candidates with a major in energy or related areas<br>• **Background (mandatory):**<br>  ○ Thermodynamics<br>  ○ Power plant engineering (design and analysis)<br>  ○ Simulation of thermal systems.<br>  ○ Matlab/Python programming.<br>• **Additional background that will be valued in the selection process:**<br>  ○ Optimisation techniques in engineering systems<br>  ○ Turbomachinery and heat exchanger design and analysis<br>  ○ Matlab Simulink<br>  ○ Electrical Engineering<br>• **English language:** | | |

[1] This rule applies to the first contract only (CTU in Prague)

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- A certified C1 level of English is required

**Scheme:**

- M1-M24: the applicant is employed by CTU in Prague.
- M19-M24: the applicant is seconded to DSPW
- M25-M36: the applicant is employed by BH, without undergoing another selection process.

**Locations (place of work):**

- M1-M18: the applicant will be employed by Czech Technical University in Prague and located at the Department of Energy Engineering:

  České vysoké učení technické v Praze, Fakulta strojní, Technická 4, 160 00 Praha 6

  Google Maps: link
- M19-M24: the applicant will be seconded to Doosan Skoda Power:

  Doosan Skoda Power

  Tylova 1, 301 28 Plzeň 3

  Google Maps: link
- M25-M36: the applicant will be employed by Nuovo Pignone Tecnologie Srl

  Nuovo Pignone Tecnologie Srl (BH)

  Via Felice Matteucci, 2 - 50127 Firenze (FI)

  Google Maps: link

**Planned secondments:** DC5 is expected to carry out the following secondment:

- Doosan Skoda Power, Plzeň (Czech Republic): define the requirements set by the energy source (application) on the operational procedures of indirect sCO2 power cycles: nuclear, WHR and CSP.

**How to apply:** submit application package (see below) to Prof. Václav Dostál vaclav.dostal@fs.cvut.cz 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*. The candidates should address some of the following questions:
  - 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.

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- 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?

- The application package must not exceed 15 Mb

**Contract:**

- Start date (estimate): September 2023
- Type: full-time exclusive
- Annual gross salary:
  - Czech Technical University in Prague: € 29,239.11
  - Nuovo Pignone Tecnologie s.r.l.: € 37,930.00 (BH – level B1 of the "National Collective Bargaining Agreement – CNNL in force for employees in the private engineering and system installation industry, including € 31,000.00 annual salary, post-employment/performance and additional benefits)
- An additional (family) allowance is available for candidates who have family obligations (applied from and until this condition applies)

**Equal Opportunity Employers**:

Czech Technical University in Prague and Nuovo Pignone Tecnologie Srl 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, Czech and Italian laws.

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