



<b>Fellow</b>	<b>Host Institution No.1:</b> University of Stuttgart <b>Host Institution No.2:</b> Fives Cryo	<b>Country:</b> Germany <b>Country:</b> France
DC12	<b>Supervisor (academic):</b> Prof. Joerg Starflinger <b>Supervisor (industrial):</b> Dr. Sarah Tioual-Demange	<b>WP No:</b> 3
<b>Title:</b> Numerical investigation of mixing process in headers of sCO <sub>2</sub> heat exchangers		
<b>Research Objectives:</b> (1) To investigate the mixing of sCO <sub>2</sub> flows with different temperature in headers of heat exchangers. (2) To set-up a numerical model for the mixing plena of heat exchanger, e.g. using OpenFOAM. (3) To thoroughly assess the numerical data. (4) To derive recommendation for designers		
<p><b>Mobility rules (eligibility of applicants):</b> more information <a href="#">here</a></p> <ul style="list-style-type: none"> <li>• 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<sup>1</sup>.</li> <li>• In addition, they: <ul style="list-style-type: none"> <li>○ must not have a doctoral degree at the date of their recruitment.</li> <li>○ can be of any nationality.</li> </ul> </li> </ul>		
<p><b>Applicant - specifications:</b> in addition to the general specifications (eligibility criteria) listed above, the applicant must feature the following requirements:</p> <ul style="list-style-type: none"> <li>• <b>Earned degree:</b> <ul style="list-style-type: none"> <li>○ MSc in Mechanical or Mechanical Engineering (or related area). Preference will be given to candidates with a major in energy or related areas</li> </ul> </li> <li>• <b>Background (mandatory):</b> <ul style="list-style-type: none"> <li>○ Thermodynamics</li> <li>○ Fundamentals of Heat Transfer</li> <li>○ Fundamentals of CFD</li> <li>○ Linus/UNIX and Matlab/Python programming</li> </ul> </li> <li>• <b>Additional background that will be valued in the selection process:</b> <ul style="list-style-type: none"> <li>○ Experience in running numerical simulation on Linux clusters or high-speed computers</li> <li>○ Data analysis</li> <li>○ Sensitivity and uncertainty analysis</li> </ul> </li> <li>• <b>English language:</b> <ul style="list-style-type: none"> <li>○ A certified C1 level of English is required</li> </ul> </li> </ul>		

<sup>1</sup> This rule applies to the first contract only (University of Stuttgart)





**Scheme:**

- M1-M24: the applicant is employed by University of Stuttgart
- M19-M24: the applicant is seconded to Técnicas Reunidas SA
- M25-M36: the applicant is employed by Fives Cryo, without undergoing another selection process

**Locations (place of work):**

- M1-M18: the applicant will be employed by University of Stuttgart and located at the Institute of Nuclear Technology and Energy Systems:  
Pfaffenwaldring 31, D-70569 Stuttgart (Germany)  
Google Maps: <https://goo.gl/maps/sPvuz18QvuAzpuUFA>
- M19-M24: the applicant will be employed by Fives Cryo:  
25B Rue du Fort, 88190 Golbey (France)  
Google Maps: <https://goo.gl/maps/HxhPacN91b6y8D9S9>
- M25-M36: the applicant will be seconded to by Técnicas Reunidas SA::  
Parque Empresarial Adequa, Edificio 6.  
Avenida de Burgos 89, 28050 Madrid (Spain)  
Google Maps: <https://goo.gl/maps/vE12ngXUGso7rqEw8>

**Planned secondments:** DC12 is expected to carry out the following secondment:

- Técnicas Reunidas SA: to investigate the impact of flow patterns on the heat transfer characteristics of sCO<sub>2</sub> heat exchangers

**How to apply:** submit application package (see below) to Prof. Prof. Jörg Starflinger ([joerg.starflinger@ike.uni-stuttgart.de](mailto:joerg.starflinger@ike.uni-stuttgart.de)) before April 10<sup>th</sup> 2020, 17:00 h CET.

The Application Package is comprised of:

- 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





University of Stuttgart  
Germany

**Contract:**

- Start date (estimate): September 2023
- Type: full-time exclusive
- Annual gross salary:
  - University of Stuttgart: € € 38400.00
  - Fives Cryo: € 38623.00
- An additional (family) allowance is available for candidates who have family obligations (applied from and until this condition applies)

**Equal Opportunity Employers:**

University of Stuttgart and Fives Cryo 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, color, 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.

