E2S-UPPA and TOTAL are jointly seeking

# Three (3) ambitious post-doctoral coworkers (100%) who want to push the current limitations of X-ray tomography

## Why joining us?

**Chair of excellence:** E2S-UPPA, CNRS and TOTAL joined forces to tackle the most challenging problems in the energy sector. To that extent, they jointly invest 5.5M€ in a new state-of-the-art imaging centre and seek to recruit excellent PhD's and postdocs. The postdoc positions described below are part of that ambitious endeavour. More info on https://e2s-uppa.eu/en/research/chairs-of-excellence/chair-for-x-ray-imaging.html.

**Ambition:** Pau University (E2S-UPPA) is one of only 18 institutes in entire France that receive significant financial support from the French government to become a recognized institute on the international scene. E2S-UPPA's ambitions rely on core competences in Energy and Environment, backed by strong relationships with big international companies, such as the energy major TOTAL. More info on https://e2s-uppa.eu/.

**A unique region:** Whether you like surfing or skiing, hiking or biking, Pau is the place to be. With an Olympic swimming pool, a wild-water kayak track, a hippodrome and the second largest omnisport stadium in entire France, Pau has much to offer. Without mentioning that Pau's rugby team plays in the first class competition ("top 14") and that the city annually welcomes both the Tour de France and the World Touring Car Championship. However, you do not need to be a sports fanatic to feel at home in Pau thanks to its rich cultural program, fine restaurants and a pleasing climate. More info on http://www.pau.fr/.

## Context

Tomography is an image reconstruction technique that leans strongly on large-scale numerical mathematics and computational science. The technique has applications in virtually any sector of society, ranging from medicine, over non-destructive testing and metrology, up to archeology and art. Yet regardless the application, developments are always hindered by limits in resolution, contrast and speed.

## Project summary

The three postdoc positions have a common goal: pushing the limits of X-ray tomography. Each postdoc will focus on a different aspect of the problem.

- One postdoc will conceive and build a high-resolution lab-based phase contrast setup enabling to measure the complete index of refraction, which leads to improved segmentation.
- A second postdoc will develop iterative image reconstruction methods enabling to account for prior information in the context of multi-resolution and/or dynamic scanning.
- A third postdoc will implement an automated image processing pipeline enabling to analyze topological features and track them over time in 4D datasets.

Each development will be thoroughly tested using either data acquired on site, or at a synchrotron facility. Over a period of 18 months, these combined efforts are expected to yield a big step forward in data acquisition, tomographic reconstruction and image processing.

## Your tasks

- You conduct research according to the highest standards
- You publish your work in high quality journals and present at international conferences.
- You participate in the social life of the lab.

## Desired profile

We are looking for highly motivated, communicative persons with interest in the proposed research project.

- The candidate should hold a PhD degree in physics, computer science, signal processing, or another discipline that relates to the proposed project. Prior hands-on expertise with tomographic imaging and image analysis is a must. Knowledge on porous media is an asset.
- The candidate should have the ability to efficiently perform independent research. On the other hand he/she should also possess the necessary verbal and written communication skills to collaborate effectively in a team environment and to be capable of clearly explaining technical information to a non-technical audience.
- Fluency in English is required. Knowledge of French is an asset.

## Our offer

- An exciting research project in a dynamic context.
- An ISO-certified research environment with state-of-the-art instrumentation.
- A close collaboration with the imaging team of TOTAL in Pau.
- The possibility to guide PhD students.

## Applications

Interested candidates are invited to electronically submit their CV, motivation letter, diploma copies as well as the names and contact information of at least two references to Peter Moonen (peter.moonen@univ-pau.fr). Any other way of applying will not be considered. We consider until a suitable candidate has been found.

For further information please contact Peter Moonen (peter.moonen@univ-pau.fr).