JÜLICH
Forschungszentrum

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,250 employees in one of Europe's biggest research centres and help us to shape change!

The Institute Division for Nuclear Waste Management (IEK-6) at the Institute for Energy and Climate Research of the Research Centre Jülich (FZJ) deals with safety-relevant issues of nuclear waste disposal under consideration of the decided energy transition in Germany. This includes, among other things, applied basic research on the safe handling of radioactive waste and the behavior of waste forms, waste packages and the geotechnical barriers in deep geological repositories for radioactive waste, from the atomic level to macroscopic system understanding. In this context, we investigate strategies for radioactive waste treatment and disposal.

We are offering a

PhD Position – Investigation of the stability and corrosion behavior of uranium nitrides

Your Job:
Innovative nuclear reactor concepts are currently intensively discussed internationally. For the operation of most of these concepts novel fuels are envisaged, in particular materials with a matrix of uranium nitride (UN) due to their good thermophysical properties. In addition to their suitability as nuclear fuel, the stability of the materials in contact with aqueous solutions, among other things, is of great interest for the safety assessment of a repository. At IEK-6, such investigations are being carried out to maintain competence as part of the European collaborative project FREDMANS.
The work is carried out in close cooperation with European partners. One focus is on the investigation of the oxidation behavior under conditions relevant for interim storage, as well as the conversion of the nitride matrix into an oxide matrix.

- Investigation of the oxidation of UN based materials
- Complete oxidation of the nitride matrix to an oxide matrix
- Influence of certain fission product types (Ln, PGM) on the oxidation of UN
- Influence of atmospheric composition on the oxidation of UN
- Development of thermodynamic and kinetic models to describe the oxidation of UN

We look forward to receiving your application until 31.05.2023 via our **Online-Recruitment-System!**
Questions about the vacancy?
Get in touch with us by using **our contact form.**
Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

in collaboration with project partners
- Preparation of data and scientific interpretation of results
- Independent presentation of the results at scientific conferences and in scientific publications

Your Profile:
- Completed university studies (Master) in natural sciences, chemistry, physics, or related discipline
- Experience in the fields of radiochemistry, analytics, and materials science
- Practical experience with laboratory work, as well as willingness and ability to learn and develop these skills are essential
- Experience in handling radioactive materials is desirable
- Ability to work in an international multidisciplinary team
- Willingness to travel nationally and internationally on official business
- Strong motivation to complete the PhD within 3 years
- Very good command of written and spoken English

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We offer ideal conditions for you to complete your doctoral degree:
- A highly motivated working group as well as an international and interdisciplinary working environment at one of Europe's largest research establishments
- Outstanding scientific and technical infrastructure
- Opportunity to participate in (international) conferences and project meetings
- Continuous scientific mentoring by your scientific advisor
- Doctorate at RWTH Aachen University (if requirements are met)
- Flexible work (location) arrangements, e.g. remote work
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: https://www.fz-juelich.de/en/judocs
- Targeted services for international employees, e.g. through our International Advisory Service
- 30 vacation days per year including an attractive regulation for bridging days
- Working for one of the best employers in Germany – 6th rank in Glassdoor employee satisfaction award: https://www.glassdoor.de/Award/Beste-Arbeitgeber-Deutschland-LST_KQ0,29.htm

The position is for a fixed term of 3 years. Pay in line with 60% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus"). Pay higher than the basic pay may be possible. Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.