



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 7,100 employees in one of Europe's biggest research centres and help us to shape change!

With the ongoing energy transition, the exploitation of the subsurface (e.g., for geothermal energy extraction, CO<sub>2</sub> sequestration, H<sub>2</sub> storage or even nuclear waste disposal) will increase. Ensuring the long-term effectiveness of deep subsurface storage systems relies on our understanding and modeling capability of critical relationships between natural media and engineered components. In the recently acquired ERC funded project Genies (<https://cordis.europa.eu/project/id/101040341>), we aim to fill current knowledge gaps related to mineral dissolution and crystallization processes with gas production and transport in porous media. Moreover, the impact of the presence of gases on mineral crystallization in tightly confined porous media is addressed, which is important for a realistic description of such processes in reactive transport models.

**We are offering the following position in our Nuclear Waste Management division for the next possible date**

## **PhD position on geochemical processes and multiphase flow in porous media**

### **Your Job:**

- Exploring geochemical processes (e.g. coupled mineral dissolution and precipitation) leading to gas generation in water saturated porous media to assess their consequences on solute transport
- Development and application of dynamic macroscopic experiments combined with magnetic resonance imaging to gain insights into relevant processes
- Collaboration in the development of mechanistic models to describe system evolution, testing models against experimental observations
- Processing of the data and scientific interpretation of the results
- Independent presentation of the results at scientific conferences and in scientific publications

We look forward to receiving your application until 05.03.2023 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](http://www.fz-juelich.de)

**Your Profile:**

- A scientific university degree (Master) in Earth/Environmental Sciences, Chemistry, Physics, Chemical Engineering, Petroleum engineering or a related discipline
- Experience or interest in subsurface solute transport
- Practical experience with laboratory work and scientific programming languages (such as Python) are desirable, willingness and aptitude to learn and develop these skills are essential
- Knowledge on geochemical thermodynamic modelling is desirable
- Ability to work in an international multidisciplinary team is essential
- Excellent English communication and writing skills

**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
- A large research campus with green spaces, offering the best possible means for networking with colleagues and pursuing sports alongside work
- Outstanding scientific and technical infrastructure
- Opportunity to participate in (international) conferences and project meetings
- Continuous scientific mentoring by your scientific advisor
- 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

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](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.