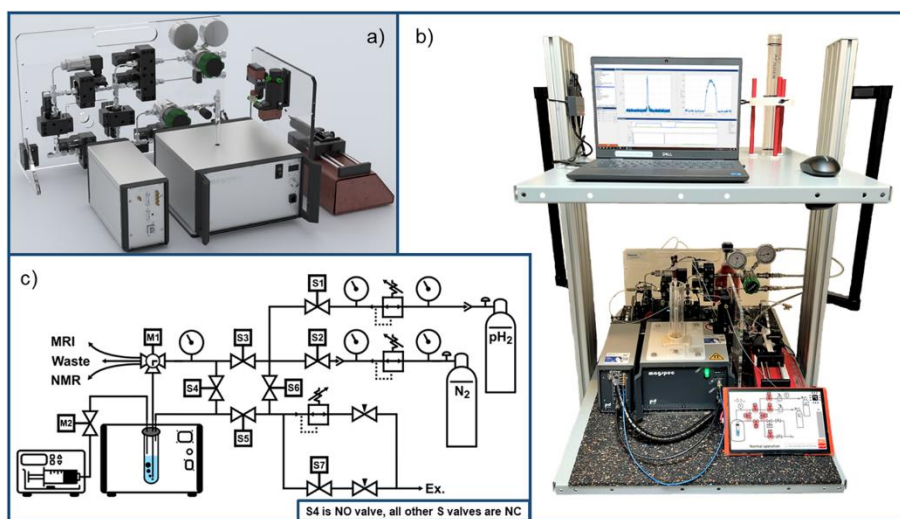


Vacancy: Doctoral candidate specializing in experimental physics or chemical physics for hyperpolarized molecular imaging

Project description

Several hyperpolarization techniques were developed to enhance the intrinsic low signal of Nuclear Magnetic Resonance (NMR) and Magnetic Resonance Imaging (MRI) to observe real-time and in vivo metabolic processes. Parahydrogen (pH₂) is the nuclear spin isomer of molecular hydrogen that can be generated on a large scale by cooling down normal hydrogen. pH₂-induced hyperpolarization (PHIP) already demonstrated ¹³C-polarization of pyruvate above 10%.



Within the scope of this R&D project, a parahydrogen-induced polarizer will be constructed for in vitro and in vivo applications. The project continues our preliminary studies (Ellerman et al., Nat. Comm. 2023, DOI: 10.1038/s41467-023-40539-9).

Position:

This Ph.D. aims to develop a PHIP-reactor and method for in vivo imaging jointly.

This is a 3-year 75% TVL-13 (German income class) fixed contract position (about 58,000 Euro/year before tax, about 2,000±100 Euro/month after tax, depending on your professional experience) starting as soon as possible (e.g., January 2024).

Your tasks:

- Developing the PHIP-hyperpolarizer;
- Performing hyperpolarization experiments with PHIP-hyperpolarizer;
- Presenting the results at national and international conferences and publishing results in scientific journals

Your profile:

- You have completed your university studies (master's degree or German Diploma) in physics, chemical physics, biomedical technology, or a comparable engineering field.
- You have knowledge, practical experience, and abilities in the fields of magnetic resonance or magnetic sensors.
- Experience in programming, modeling, and analyzing data would be an advantage.
- You are willing and able to perform goal-oriented scientific work.
- You are a strong team player with excellent communication skills.
- You have a very good command of spoken and written English.

We offer:

- A position at the second-largest University Hospital in Germany with access to state-of-the-art magnetic resonance equipment;
- Access to imaging, chemical, and RF-electronics facilities of the section of biomedical imaging of Kiel University (PI Prof. Jan-Bernd Hövener);
- An intensive Ph.D. supervision in an interdisciplinary team
- An excellent public transportation and bicycle highway directly to your workplace

PI of the project and contact person

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