



## 2 PhD positions

### *Chip-based pulsed dynamic nuclear polarization*

Two PhD positions are available, one in the Anders lab (University of Stuttgart) and one in the Mathies lab (Leipzig University). Start dates are 1 October 2026 or as soon as possible thereafter.

#### Project description

Pulsed dynamic nuclear polarization (DNP) is a new, promising approach to enhancing the sensitivity of nuclear magnetic resonance spectroscopy and imaging. So far, it has relied on costly, bulky instrumentation, which has hampered development and application. The project aims to change this by realizing pulsed DNP on a chip.

#### What you would be doing

- PhD 1
  - explore architectures and design the pulsed-DNP chip
  - oversee chip manufacturing and construction of supporting infrastructure
  - implement pulse-to-pulse phase coherence
- PhD 2
  - perform pulsed DNP experiments on macroscopic instrumentation
  - guide the development of the pulsed-DNP chip and its supporting infrastructure
  - realize on-chip pulsed DNP
  - design microwave pulse sequences for on-chip DNP using spin physics, numerical simulation tools, and quantum optimal control

#### Essential qualifications

A master's degree in Physics, Electrical Engineering, Chemistry, or a related field and the ability to design, execute, and troubleshoot complex experimental research.

#### What we offer

A stimulating environment at world-wide leading and well-connected institutions. The research project is embedded in the Collective Research Center (CRC) HyPERiON, which aims to realize the next generation of magnetic resonance methodology and instrumentation. Within the CRC, ample opportunities exist for learning, networking, and collaboration. Salary will be in accordance with guidelines of the Deutsche Forschungsgemeinschaft (DFG).

#### Interested?

To apply, send a cover letter, your CV, and contact information of two professional references to Prof. Dr. Jens Anders ([jens.anders@iis.uni-stuttgart.de](mailto:jens.anders@iis.uni-stuttgart.de)) and Prof. Dr. Guinevere Mathies ([guinevere.mathies@uni-konstanz.de](mailto:guinevere.mathies@uni-konstanz.de)). The positions are open until filled.

Visit our websites: [www.iis.uni-stuttgart.de/de/institut](http://www.iis.uni-stuttgart.de/de/institut) and [www.chemie.uni-konstanz.de/mathies](http://www.chemie.uni-konstanz.de/mathies).