



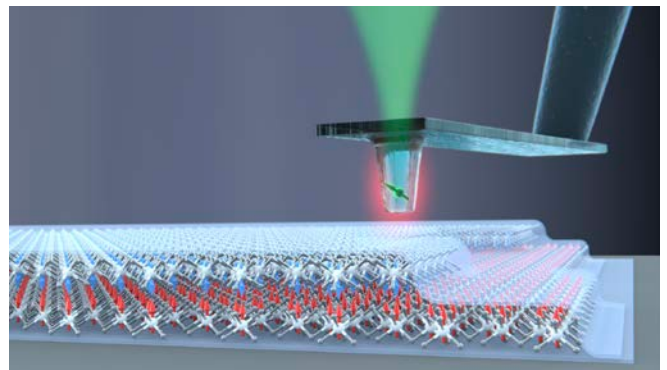
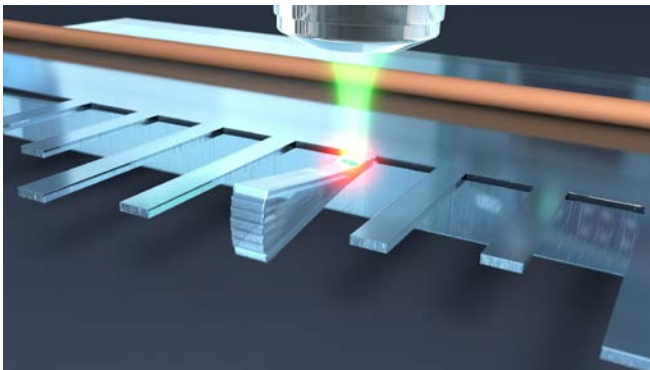
DEPARTEMENT OF PHYSICS OF BASEL UNIVERSITY
CONDENSED MATTER PHYSICS
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The quantum-sensing group at Basel University is looking for highly motivated, qualified and dynamic scientists to join our ongoing experiments for a

Postdoctoral position in “Spectroscopy of Color Center Spins in Diamond”

Color centers in diamond offer outstanding properties for a wide range of applications in quantum technologies, especially in the context of quantum information processes and quantum sensing [1,2]. Two key contenders for concrete applications are the nitrogen vacancy (NV) and the silicon vacancy (SiV) defect centers, which offer remarkable spin coherence [3] and optical properties [4], respectively.

In this project, we explore novel and fundamental properties of these color centers with the goal of applying them to specific sensing and imaging tasks for quantum sensing under extreme conditions (in, e.g., temperature, magnetic field, or stress). Facilitated by innovative approaches in nanophotonics [5] and diamond nanofabrication, we will deepen our understanding of spin-polarization mechanisms and the photophysics of NV centers by strain spectroscopy, and for SiV centers pave the way towards all-optical scanning probe magnetometry at mK temperatures and Tesla-range magnetic fields.



We are looking for an outstanding, motivated researcher to join our team in this exciting experimental project. The successful candidate has completed a Ph.D. in physics or related disciplines, is highly motivated and enjoys working on a complex experiment with an international team. The ideal candidate has experience with **quantum optics**, **nanophotonics**, and **coherent spin control**. Additional experience in surface science, materials- and strain-engineering and nanofabrication is a plus.

The Basel Physics Department enjoys an outstanding international reputation and is very well equipped for performing world-class research. We are strongly connected to the international research community and have a clear focus in the quantum- and nano-sciences. We offer a highly attractive research environment and interesting salaries according to Swiss standards.

Interested candidates send their application including a CV, transcripts of all diploma and contact details of at least two references directly to patrick.maletinsky@unibas.ch.

Further reading:

- [1] “Probing magnetism in 2D materials at the nanoscale with single spin microscopy”, [Science 364, 973](#)
- [2] “Loophole-free Bell inequality violation using electron spins separated by 1.3 kilometres”, [Nature 526, 682](#)
- [3] “Strong mechanical driving of a single electron spin”, [Nature Physics. 11, 802](#)
- [4] “Si-V Spin Qubit in Diamond: A Quantum Memory Exceeding 10 ms with Single-Shot State Readout”, [PRL, 119, 223602](#)
- [5] “Parabolic diamond scanning probes for single spin magnetic field imaging” [arXiv:2003.01733](#)