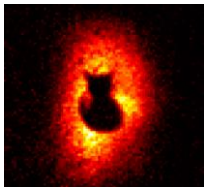
Post-doctoral position in quantum imaging / optics in scattering media in Paris

Supervisor: Hugo Defienne
Topics: Quantum imaging, quantum optics in scattering media, quantum entanglement.
The lab: Quantum Imaging Paris group, part of the Paris Institute of Nanosciences (INSP). Located at Sorbonne University, in the center of Paris.
Funding: 2 years funding (ANR) + potential extension.
How to apply? Email to hugo.defienne@insp.upmc.fr with a CV and references
Deadline: June 2025 or until a suitable candidate is selected.

Come join our team as we work to develop a cutting-edge quantum imaging system, delve into the subtleties of quantum optics in scattering media, and generate as well as study complex non-classical states of light! We are currently seeking a highly motivated postdoctoral researcher with experience in experimental optics/quantum optics/imaging, or related fields, to join us in 2025. A passion for physics, a problem-solving mindset, and a strong team spirit are essential qualities for the successful candidate. **Be part of this exciting journey to advance the frontiers of quantum technology**!

Our current topics:

- Entanglement-enabled imaging through scattering media
- Exploring and shape quantum optical states in complex media
- Investigating interactions between entangled light and nanomaterials
- Deciphering high-dimensional multi-photon quantum entanglement
- **Your idea?**



Quantum image from PRL 133 (9), 093601 (2024)

Expertise and equipment: Our laboratory is state-of-the-art, fully equipped, and generously funded to support many ongoing experiments. Our expertise spans experimental and theoretical quantum optics, quantum imaging, light structuring, optics in scattering media, and computational imaging. In particular, our team has extensive experience with single-photon cameras, including EMCCD, SPAD, and Tpx3cam.

Research environment: The new post-doc will join the Quantum Imaging Paris team (quantumimagingparis.fr). It is based in Sorbonne University, at the Paris Institute of Nanosciences (INSP), located at the center of Paris (4 place Jussieu, 75005 Paris). The team, led by Dr. Hugo Defienne, comprises 5 international PhDs and post-docs and enjoys the exceptional scientific environment of Sorbonne University with its numerous experimental and theoretical physics groups. We also have many collaborations with international research groups. We care for a fully open and inclusive atmosphere.

Funding: We are pleased to offer two years of funding through an ANR grant. The gross salary varies between 3519€ and 4291k€ gross / months depending on the candidate prior experience (set by the CNRS scale). Moreover, we encourage the new postdoctoral fellow to apply for additional postdoctoral funding opportunities, such as a Marie Sklodowska-Curie fellowship (deadline September 10, 2025). Our team, CNRS and Sorbonne University resources are available to train and support the postdoc in this endeavor.

Professional development: As a team, we prioritize the professional development of our post-doctoral fellows, providing opportunities for mentorship, grant writing, and career-enhancing experiences. Group leader H. Defienne actively supports the unique career goals and aspirations of our post-docs while also dedicating a portion of his time to lab work alongside them. During recruitment interviews, we discuss each post-doc's motivations and expectations, as well as potential research projects. Our approach balances both scientific rigor and individualized support for post-doctoral fellows as they pursue their career goals.

Team recent publications:

Advances in quantum imaging. H Defienne et al. *Nat. Phot.*, 1-13 (2024)
Adaptive optical imaging with entangled photons. P Cameron et al. *Science* 383 (6687), 1142-1148 (2024)
Hiding images in quantum correlations. C Vernière, H Defienne. *PRL* 133 (9), 093601 (2024)
Towards robust detection of entangled two-photon absorption. R Pandya et al. *arXiv*:2410.06199 (2024)
Manipulation and certification of high-dimensional entanglement through a scattering medium. B Courme et al. *PRX Quantum* 4 (1), 010308 (2023)