

# PhD Position(s) in the fields of Super Resolution Microscopy and Single Molecule Tracking



The research group of Francisco Balzarotti at the Research Institute for Molecular Pathology (IMP) offers two positions for highly motivated PhD students, who are interested in the fields of super resolution microscopy and single molecule tracking.

**Our Group.** We develop novel optical methods and instrumentation for the observation of biological phenomena with the highest fidelity. We focus on schemes that require outstanding performance in terms of spatial and/or temporal resolution, such as super resolution fluorescence imaging and single-molecule tracking. By bringing together expertise in optics, labelling and photophysics, we develop solutions to transverse obstacles in biology and biophysics within a highly collaborative environment.

**The Projects.** The advent of Super Resolution Microscopy has unlocked the access to spatial resolutions beyond the diffraction limit of visible light (~250nm), becoming an invaluable tool for exploring the structure and function of biological processes. The recently introduced MINFLUX concept has pushed even further the possibilities of molecular localization in terms of spatio-temporal resolution. Driven by these concepts, the successful candidates will develop instrumentation to fill current technological gaps, while answering concrete biological questions in association with the rich and collaborative environment of the Vienna BioCenter.

**The Candidates.** Successful candidates should hold a MSc or equivalent degree in the fields of physics or engineering.

Additionally, the following aspects are desirable:

- Theoretical and hands-on experience in optics
- Experience in the field of super resolution microscopy
- Programming proficiency in Py-thon, MATLAB, LabView, FPGA and/or GPU
- Experience with electronics (circuitry, microcontrollers, high frequency/high voltage)
- Knowledge of statistics, stochastic processes and control theory

The candidates should be curious, creative, and excited about learning new topics and skills! Despite the emphasis on technology development within our group, a candidate with experience / knowledge / interest in biology will make a great match. This is the driving force of our environment at the Vienna BioCenter, where there is extensive exposure to diverse topics in biology.

**Our Environment.** The Research Institute of Molecular Pathology (IMP) in Vienna is a basic biomedical research institute largely sponsored by Boehringer Ingelheim. With over 200 scientists from 40 countries, the IMP is committed to scientific discovery of fundamental molecular and cellular mechanisms underlying complex biological phenomena. The IMP is located at the Vienna BioCenter, one of Europe's most dynamic life science hubs with 1,800 employees from 70 countries in four research institutes, three universities and two dozen biotech companies.

**Application.** Graduate student will only be hired through the Vienna BioCenter PhD Program, see above. Nevertheless, if you are interested in joining our team, please also send a direct application (motivation letter, CV, contact details for references) by email to [francisco.balzarotti@imp.ac.at](mailto:francisco.balzarotti@imp.ac.at).

**Deadline.** April 15<sup>th</sup>, 2021

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Our Campus  
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Vienna BioCenter PhD Program  
[www.training.vbc.ac.at](http://www.training.vbc.ac.at)

