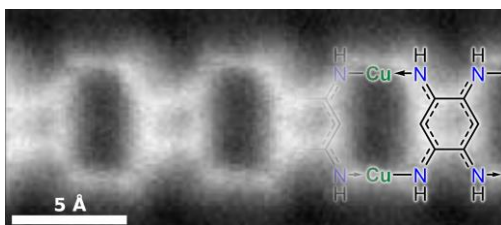


## PhD position to investigate electronic transport in metal-organic nanowires using scanning probe microscopy (W/M)

Atomically precise low-dimensional nanostructures serve as ideal model systems to understand electronic quantum transport at reduced dimensions and ultimately create and control quantum electronics. Based on very promising proof-concept results, we want to explore electronic transport through single metal-organic wires and sheets at the nanoscale. In this project funded by the Swiss National Science Foundation (SNSF), we want to obtain a fundamental understanding of this largely unexplored class of materials and to ultimately together exploit our new knowledge towards prototype devices.

You will synthesize metal-organic wires (i.e. 1D coordination polymers) by chemical reaction of metal atoms and precursor molecules directly at surfaces in ultra-high-vacuum. In order to characterize and understand their formation, electronic properties and in particular their electronic conductivity, you will combine low-temperature scanning probe microscopy (scanning tunnelling/non-contact atomic force microscopy – [STM/nc-AFM](#)), X-ray spectroscopy methods (photoelectron spectroscopy, X-ray absorption spectroscopy) with and micro/nanofabrication.



*High resolution nc-AFM image revealing the structure of a metal-organic wire.*

You will perform experimental work, data analysis, present your results at international conferences, write publications in the peer reviewed journals and participate in beam-times at the synchrotron. Note that, while being employed at EPFL, your work place will be at the federal research institute [Paul Scherrer Institut \(PSI\)](#) in Villigen (see map).

We are looking for highly motivated candidates with a Master's degree in physics, chemistry nanoscience, materials science or a related field. Experience with some of the following domains are of advantage but not required: scanning probe microscopy, electronic transport measurements, surface science, ultra-high vacuum, building of prototype devices, programming. You are curious with a self-drive towards new knowledge, enjoy working in a team and pay attention to details. A good command of both spoken and written English is essential.

We offer a fully funded, 4-year PhD position, excellent research infrastructures and resources, in particular a state-of-the-art low-temperature STM/nc-AFM system dedicated to the project. EPFL and PSI are an excellent research institute and a renowned university, respectively, offering a stimulating international research environment, a competitive salary and an ideal starting point for a scientific career. The spirit of our open-minded, small, interdisciplinary and dynamic team offers flexibility and the possibility to generate and test your own ideas. Join us, play with atoms and molecules and unravel nature's secrets at the nanoscale.

For further information about this lab and project, please consult Dr. Christian Wäckerlin ([christian.waeckerlin@epfl.ch](mailto:christian.waeckerlin@epfl.ch)).

Please apply following the instructions in the original job-offer: <https://www.epfl.ch/about/working/phd-position-to-investigate-electronic-transport-in-metal-organic-nanowires-using-scanning-probe-microscopy-w-m/>



*Electronic version of this document.*