Basel Precision Instruments

Internship Opportunities at Basel Precision Instruments GmbH

where cutting-edge science meets innovation and entrepreneurship

Basel Precision Instrument GmbH (BASPI) offers high-end, ultra-low noise and ultra-stable electronics for quantum research. A spin-off of the physics department, BASPI is located close to the university campus in Basel. Our team of low-noise electronic experts works closely with the quantum and low-temperature research groups here in the house. With a dynamic local environment and a customer base of over 100 research labs worldwide, BASPI offers an exciting opportunity for you to get a taste of the world of high-tech start-ups and SMEs.

Location: City of Basel in Switzerland; University campus.
For more information or to apply contact us at info@baspi.ch
Application material: resume and a short motivation letter.

Basel Precision Instruments GmbH, Klingelbergstrasse 82, 4056 Basel, Switzerland, info@baspi.ch, http://baspi.ch

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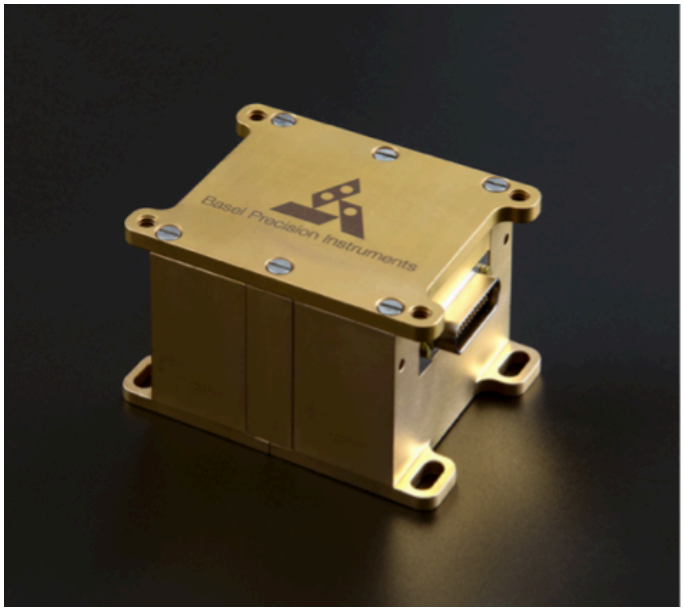

Project 1: Cryogenic Microwave Filter and Thermalizer (MFT)

Microwave filtering and thermalization of signal wires are two critical ingredients in setting up a sensitive low-temperature (milli-Kelvin) experiment. Our silver-epoxy based compact MFT filters unite efficient electron thermalization and ultra-strong microwave attenuation. The MFT filters are an instrumental part of numerous quantum experiments world-wide while we continue to innovate and improve their performance.

As part of this project, you will test new MFT designs in close collaboration with the teams at Uni Basel, participate in the design and production of MFT units and optimize the production process.

Three stacked MFT filter boxes under test in a dilution fridge at Uni Basel.

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Project 2: Python / QCoDeS programs for LNHR DACII Low-Noise High-Resolution DAC Voltage Source

With the scaling up of quantum experiments comes a need for compact, multi-channel, precise voltage sources. BASIL's LNHR DACII is the highest resolution, lowest noise and most stable voltage source available. With compact 24-channel design, AWG functionality and a series of application specific features, it enables precise control of quantum devices and makes tuning complex quantum devices faster and more efficient.

As part of this project, you will explore user applications and write application specific Python/CoDeS programs to support our customers. To this end, you will expand on the existing driver and build up a QCoDeS library for the LNHR DACII. Prior programming experience, ideally in Python or QCoDeS is required.

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Project 3: Automation of Test Setups

Providing customers with timely responses and short delivery times is of utmost importance to BASPI. As we undergo significant expansion during the scale-up phase, elevating our production capacity remains paramount, alongside ongoing enhancements to efficiency. The production process of our ultra-low-noise and ultra-stable electronics includes meticulous screening and selection of key components such as input transistors and reference voltage sources as well as thorough testing of the completed instrument. As part of this project, you will spearhead the automation of certain testing procedures. This entails designing test setups and circuitry, creating digital interfaces and streamlining data acquisition and storage processes. Prior experience in electronics or programming is required.

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