

Postdoctoral position in low-temperature UHV AFM combined with 10fs laser system

The Position

The Grutter group at McGill University in Montreal has an immediate opening for a postdoc with expertise in UHV low-T SPM. Starting date negotiable.

The postdoc will be responsible for commissioning and operating a new UHV low-T AFM/STM system that will be combined with a 10fs laser system to study how the structure of atomic scale defects correlate with ultrafast time resolved optoelectronic properties.

The postdoc is expected to work with a team of graduate students and international collaborators on advancing ultrafast optical pump-probe methods detected locally by AFM. This unique combination of fs lasers and cryogenic UHV AFM will allow the investigation of optoelectronic, vibrational and nonlinear optical material properties at timescales down to 10fs. The aim is to understand how atomic scale defects determine these properties. Systems to be studied include charge transfer in organic semiconductors, excitons in 2D systems and the optoelectronic properties of individual and coupled atomically positioned dopant atoms.

The position is currently vacant and available for an immediate start. The contract's initial term will be one year, a 2 year extension depends on the individual's performance. The salary will be commensurate to the experience.

Duties and Responsibilities

- Commissioning, operation and maintenance of a new UHV cryogenic SPM system.
- Training of graduate students on atomic scale imaging with SPM, in particular nc-AFM
- Development of new methods to detect ultrafast sample response on a nanometer length scale via force detection using a 10fs laser system (see our recent publication www.pnas.org/cgi/doi/10.1073/pnas.2003945117).
- Collaborate with members of the Grutter research group on research, publications and conference presentations.

Qualifying Skills and Abilities

- Exceptional skills in high resolution scanning probe techniques, in particular low-temperature non-contact Atomic Force Microscopy (nc-AFM) in ultra-high vacuum conditions are essential.
- A strong background in instrumentation and SPM methods development is desirable.
- Experience in surface science preparation and characterisation techniques is a plus.
- Excellent interpersonal skills.
- Demonstrated ability to prioritize and multitask to meet deadlines.
- Strong problem solving and organizational skills, diplomacy, and initiative.
- Excellent communication skills in English.

Education and Experience

- Recent Ph.D. in Physics, Material Science, Chemistry or related field.
- At least 3 years of hands-on experience with low-temperature ultra-high vacuum AFM.
- Demonstrated experience in atomic scale imaging.
- Strong publication track record.

Minimum Education and Experience

Completed Ph.D.

Annual Salary

Competitive, commensurate with experience; relocation package available.

Hours per Week

35 (Full time)

Application Process

Candidates should submit the following:

- Cover letter.
- Academic Curriculum Vitae including publication list.
- 1 page statement of research motivation and interests.
- Names of three referees

We are not accepting applications for this job through AcademicJobsOnline.Org right now. Please apply at https://mcgill.wd3.myworkdayjobs.com/en-US/mcgill_careers/job/Rutherford-Physics/Postdoctoral-Researcher-in-low-temperature-UHV-AFM-combined-with-10fs-laser-system_JR0000021853

The applications will be reviewed in the order received, and the position will remain open until filled. Inquiries may be sent to Professor Peter Grutter, peter.grutter@mcgill.ca

More information about the Grutter group can be found at www.physics.mcgill.ca/~peter .

The successful candidate will be embedded in a stimulating academic environment by being a member of the Center for the Physics of Materials (www.physics.mcgill.ca/cpm), the Quebec funded Transdisciplinary Institute of Excellence in Quantum Information (<https://www.intriq.org>) and the multi-university Cluster in Advanced Materials (www.rqmp.ca/?lang=en).

McGill University, one of the top ranked universities in Canada, is in the center of downtown Montréal, a vibrant, artistic, high-tech, multi-cultural city that ranks as one of the [world's top 10 cities for students](#). McGill's language of instruction is English, and one can navigate the city in French or English. McGill and the Province of Québec have generous and family-friendly policies.

McGill University hires on the basis of merit and is strongly committed to equity and diversity within its community. We welcome applications from racialized persons/visible minorities, women, Indigenous persons, persons with disabilities, ethnic minorities, and persons of minority sexual orientations and gender identities, as well as from all qualified candidates with the skills and knowledge to productively engage with diverse communities.

McGill further recognizes and fairly considers the impact of leaves (e.g., family care or health-related) that may contribute to career interruptions or slowdowns. Candidates are encouraged to signal any leave that affected productivity, or that may have influenced their career path. This information will be considered to ensure an equitable assessment of the candidate's record.

McGill implements an employment equity program and encourages members of designated groups to self-identify. Persons with disabilities who anticipate needing accommodations for any part of the application process may contact, in confidence, accessibilityrequest.hr@mcgill.ca.

All qualified applicants are encouraged to apply; however, in accordance with Canadian immigration requirements, Canadians and permanent residents will be given priority.