

**Postdoctoral Fellow for STEM analysis of Semiconductor Nanostructures at Simon Fraser University** : Oct. 2024. There is an immediate opening for a Postdoctoral Fellow in the field of semiconductor materials and device characterization supervised by Karen L. Kavanagh at the Physics Department of Simon Fraser University (SFU) with collaborators Simon Watkins, also at SFU, and Songrui Zhao at McGill University. The position is funded by our individual NSERC Discovery grants and a NOVA-NSERC-FRONT early career grant. The new postdoc will be primarily engaged in the characterization of nitride semiconductor nanowires and planar material grown either by plasma enhanced MBE (McGill) or MOCVD (SFU). This will include investigations with scanning and transmission electron microscopy (S/TEM) including the preparation of electron transparent sections using focussed ion beam milling.

Depending on the interests and experience of the PDF, there will be much opportunity to share the know-how in growth techniques, and other characterization equipment that is managed by the 3 groups including He ion microscopy, electron holography, photoluminescence, x-ray diffraction, atomic force microscopy, and transport and optoelectronics measurements.

For more information about the science done in our groups, see:

1. Vertical semiconductor deep ultraviolet light emitting diodes on a nanowire-assisted aluminum nitride buffer layer", Q. Zhang, H. Parimoo, and S. Zhao, *Sci Repts.* 12, 7230 (2022).

2. Missing built-in potential at GaN nanowire axial p-n junctions, Anitha Jose, Qihua Zhang, Michael J. Baker, Sebastian Koelling, Cristina Cordoba, Mingze Yang, Elosie Rahier, Arthur Blackburn, Oussama Moutanabbir, Martha R. McCartney, Songrui Zhao and Karen L. Kavanagh. *Nanotechnology* (2024) in revision.

3. Comparing the mean inner potential of Zn-VI semiconductor nanowires using  $\omega$ -axis electron holography. Anitha Jose, Sarry Al-Turk, Harry E. Ruda, Simon P. Watkins, Martha R. McCartney, Cristina Cordoba and Karen L. Kavanagh. *Semiconductor Science and Technology.* 37 (2024) 075004.

4. Ultrasensitive rapid cytokine sensors based on asymmetric geometry two-dimensional  $\text{MoS}_2$  diodes, G L Thushani De Silva, Mirette Fawzy, Karen Kavanagh, Miriam Rosin, and Michael Adachi. *Nature Communications.* 13 (2022) 7593.

5. Geometric effects on carrier collection in core-shell nanowire p-n junctions. Mingze Yang, Ali Darbandi, Simon P. Watkins, and Karen L. Kavanagh. *Nano Futures* 5 (2021) 025007.

Position Requirements • PhD in Condensed Matter Physics, Materials Science, Electrical Engineering or related field. • Hands-on experience with semiconductor materials and device characterization • Record of publications in high-impact journals. TEM experience highly desirable but not required.

To apply: please send a curriculum vitae and 3 names of references to [kavanagh@sfu.ca](mailto:kavanagh@sfu.ca). All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority. Position will remain open until filled.

Simon Fraser University respectfully acknowledges the Musqueam, Squamish,

Tsleil-Waututh, Katzie, Kwikwetlem, Qayqayt, Kwantlen, Semiahmoo, and Tsawwassen peoples on whose unceded traditional territories our three campuses reside.

Simon Fraser University is an institution whose strength is based on our shared commitment to diversity, equity and inclusion. Diversity is an underlying principle of our Strategic Vision, which pledges SFU to "foster a culture of inclusion and mutual respect, celebrating the diversity reflected among its students, faculty, staff, and our community." SFU is committed to ensuring no individual is denied access to employment opportunities for reasons unrelated to ability or qualifications. Consistent with this principle, SFU will advance the interests of underrepresented members of the work force, including Indigenous peoples, persons with disabilities, racialized persons and women; embrace gender and sexual diversity; ensure that equal opportunity is afforded to all who seek employment at the University; and treat all employees equitably. Candidates that belong to underrepresented groups are particularly encouraged to apply.