**Ph.D. position in the Canadian High Arctic Ionospheric Network group at UNB**

Observing and resolving the complex interactions between the solar wind, the ionosphere and the neutral atmosphere are critical to understanding the role of the upper atmosphere and space weather in the sun-earth system. The Radio and Space Physics Laboratory ([www.rspl.ca](http://www.rspl.ca)) at the Physics Department of the University of New Brunswick, Canada, has been awarded a Canadian Space Agency Flights and Fieldwork for the Advancement of Space Technology (FAST) grant to develop and field test a new observing system. The new observing system will combine existing ground-based ionosonde infrastructure, operated by RSPL, with a low-cost Doppler wind instrument to simultaneously measure the dynamical fields of the neutral atmosphere and ionosphere. These measurements will provide a detailed and unique window into the ion-neutral coupling in the Earth’s upper atmosphere.

We are seeking a highly motivated Ph.D. student to take a lead role in developing, implementing, and field testing this new instrument concept. The technical readiness of the instrument will be advanced through several rounds of ground-based testing and future testing and verification in the near-space environment on a stratospheric balloon. This work aims to realize the instrument as a payload on a future satellite mission. The Ph.D. student will make significant hardware development contributions and lead data analysis and interpretation efforts.

RSPL consists of a dynamic group of researchers that consists of Research scientists/Engineers, technicians, IT specialists, and graduate students. RSPL provides a conducive atmosphere for collaborative and independent learning and research. RSPL is involved in various national and international research initiatives and projects and is engaged in developing remote sensing techniques. RSPL also operates the Canadian High Arctic Ionospheric Network (CHAIN).

**Requirements/Skills:**

* M.Sc. (Phys.) or M.Sc. (Eng. Phys)
* C/C++/python (one at a minimum)
* Hardware experience (instrument automation, electronics design, PID controllers, etc.)
* Hands-on experience with optics is an asset
* Experience with optical design software (Zemax or Code V) is an asset
* Atmospheric physics knowledge is an asset

**Start Date**

* Fall 2022 (earlier start date can be negotiated)

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