

Pb/s Short Reach: Research Assistant

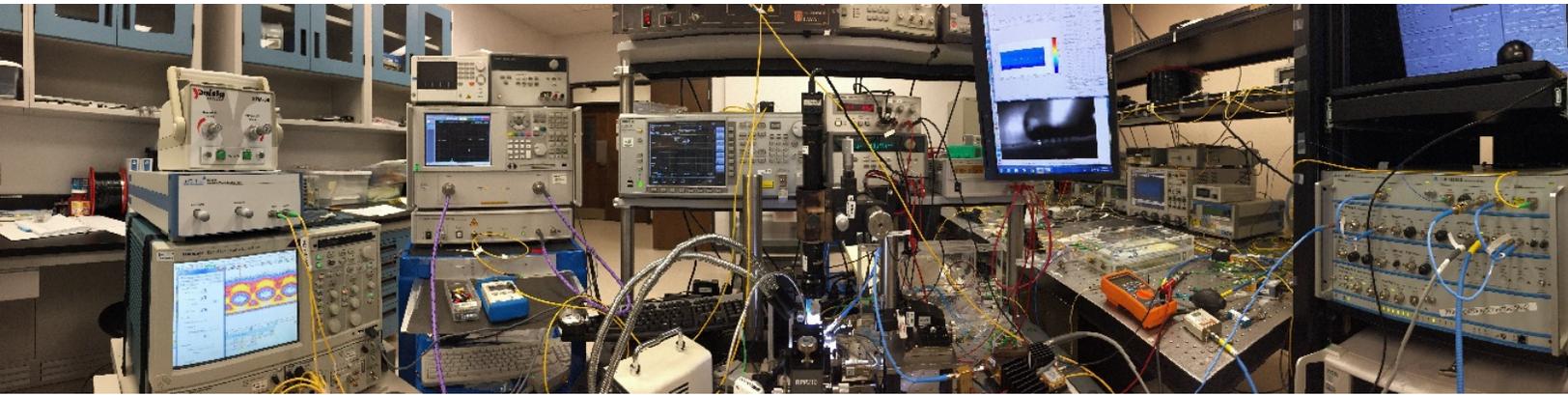
Experimental Research in Petabit per second Communications for Data Centers

We are recruiting for a new five-year research project on Pb/s optical communications enabled by fibers supporting mode multiplexing and integrated frequency combs on silicon photonics. We are seeking a research professional responsible for the implementation and operation of a very high speed transmission testbed with advanced modulation formats over multiple modes. He/she will supervise two postdoctoral fellows. He/she will supervise the training of graduate students in the operation of research equipment, as well as participating in the planning of their experiments. In collaboration with a technician, he/she will be responsible for the extensive experimental testbed and its daily operation. He/she will participate in the definition of research objectives and will contribute to the evolution of the laboratory facility over the tenure of the project.

Interested candidates should have experience in experimental research in the field of optical communications and photonic devices. Current research activities involve generation and characterization of high speed optical communication channels with advanced modulation formats, mode division multiplexing over OAM and polarization maintaining fibers, design of silicon photonics components, and development of digital signal processing algorithms. Experience is required in bit-error-rate measurements, RF and optical spectrum analysis, data acquisition and processing with Matlab, noise measurements, characterization of pulsed laser source, etc. Candidates should have a PhD in electrical engineering (or equivalent) with three years or more of postdoctoral research experience. Candidates should have good communications skills in English. The laboratory is bilingual and ideally the candidate would be comfortable in French and English.

This is a five-year position. The candidate will work under the supervision of Prof. Leslie Rusch at the Centre for Optics, Photonics and Lasers (COPL), Université Laval. Salaries will be commensurate with experience, following University guidelines.





Specific duties will include:

- Responsible for the design, implementation and operation of a coherent optical communications testbed over C and L bands at high order modulation formats (up to 64QAM) at high baud rate (32 Gbaud and higher)
- Supervise the design, implementation and operation of a recirculating frequency shifting comb source
- Supervise the design, implementation and operation of a mode multiplexing experimental platform
- Coordinate the work of two post doctoral fellows to achieve experimental milestones
- Work with an expert technician in the maintenance of the experimental facilities
- Responsible for the daily operation of experimental facilities for this project
- Participate in the definition and execution of postdoc and PhD student experiments in this project
- Produce periodic reports for our industrial and government partners
- Participate in the production of scholarly papers reporting research results

Specific experience and skills required:

- Experience in experimental research in optical communications systems and devices
- Ability to characterize very high speed optical communications systems with coherent detection, including
 - Measurement of bit error rates
 - Measurement of optical and RF spectra
 - Offline digital signal processing
 - Noise measurements
 - Fiber and optical component characterization
 - Working with higher order QAM modulation formats
- Be familiar with the use of a wide variety of optical communications test equipment including spectral analyzers, tunable lasers, PRBS sources, external modulators, optical amplifiers, etc.

The COPL is a multidisciplinary research centre comprising 21 faculty members and nearly 200 researchers (students, post-doctoral fellows, research professionals and faculty members). Université Laval is located in Québec City, Canada, a UNESCO World heritage site. Québec city offers a wide variety of cultural activities and easy access to outdoor activities. Please send your curriculum vitae, academic records, statement of interest and the name of three references to:



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[Research overview](#)

