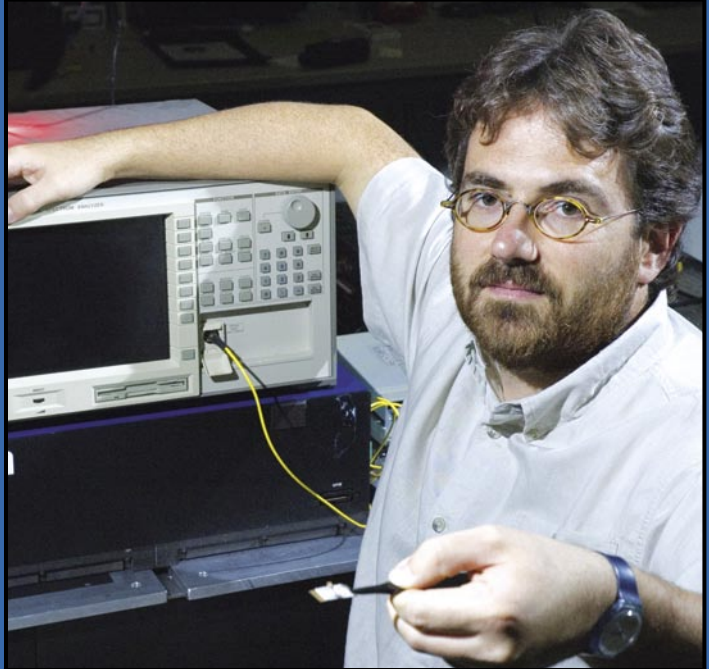


## Integrated Photonic Devices Can Make Fiber-to-the-Home Affordable

Access to industry-grade photonics fabrication through CMC is enabling researchers at the Université de Sherbrooke to experiment with new processes that could reduce the cost of photonics-based systems by more than 50 percent, making them more affordable for Canadian consumers

*"Thanks to CMC, we had access to industry-grade photonics fabrication through the Canadian Photonics Fabrication Centre. This enabled us to develop high-quality material that would be challenging and costly to obtain through a commercial foundry. And the quality is comparable to what is currently being used in the telecom industry."*

**Dr. Vincent Aimez**  
Associate Professor of Electrical Engineering  
Université de Sherbrooke



Dr. Vincent Aimez of the Université de Sherbrooke is experimenting with new processes that could reduce the cost of photonics-based systems by more than 50 percent, making them more affordable for Canadian consumers.

Researchers from the Centre de recherche en nanofabrication et en nanocaractérisation are exploring new ways to reduce the cost of photonics-based systems by developing specialized processes using materials from the Canadian Photonics Fabrication Centre in Ottawa, Ontario. Dr. Vincent Aimez of the Université de Sherbrooke was among the first researchers to take advantage of CMC's strategic partnership with this National Research Council Canada facility.

Dr. Aimez is using a specialized process known as 'epitaxy', where a thin film or layer of crystals is grown on the wafer to perform a specific function or purpose. It is a costly, industry-grade fabrication process that is typically beyond the financial reach of university researchers.

His team has fabricated photonic integrated devices for many years using a specialized process known as quantum well intermixing that enables the researcher to tune the optical and electrical properties of the chip. Using materials developed through CMC, the team was able to further demonstrate the potential of this process for commercial research and development.

"This process has the potential to reduce the price of integrated photonic devices by more than 50 percent thanks to simplified packaging, allowing researchers to add functionality without incurring increased costs. The end result is that high-performance photonics devices could be made more widely available than they are today," says Dr. Aimez, who specializes in the development of new micro and nano fabrication techniques.

Dr. Aimez has already published a review paper in *IEEE Quantum Electronics*, a leading scientific journal, with his most recent findings accepted for publication in *Applied Physics Letters*.

Dr. Aimez and his colleagues are also collaborating with the University of Alberta on the development of biochips for DNA analysis, using microelectronics chips fabricated by DALSA Semiconductor in Bromont, Québec, facilitated by CMC. *cmc*