



Advancing Satellite Technology: MEMS in Space

Researchers at the University of Waterloo and COM DEV International Ltd. are working together, with critical support from CMC Microsystems, to build MEMS components and subsystems for a new generation of smaller, lighter satellites and wireless devices that improve performance and reduce power usage.

“COM DEV faces significant and tremendous competition from European companies. In many of these nations, the government provides significant support to university researchers and their industrial collaborators to enable the development of new technologies. We are fortunate to have CMC Microsystems in Canada. CMC provides essential infrastructure to the researchers we collaborate with. Access to these tools and technologies helps to stimulate new ideas that industry can then adopt and apply to real problems.”

Tony Stajcer
Vice President
Research & Development
COM DEV International Ltd.



Dr. Raafat Mansour is the Director of the Centre for Integrated Radio Frequency Engineering (CIRFE) at the University of Waterloo. This lab is differentiated by world-class research, development, modeling, design, fabrication, packaging and testing capability for RF-based devices and systems. CMC provides critical design and test tools to the 20 graduate students, engineers and post-doctoral fellows who perform research at this facility.

COM DEV International Ltd. has a competitive edge that differentiates it from other satellite developers around the world. The company is harnessing new ideas, R&D approaches and highly skilled people through its collaboration with a research team at the University of Waterloo that benefits from tools and technologies provided by CMC Microsystems.

Based in Cambridge, Ontario, COM DEV is working closely with Dr. Raafat Mansour, who leads the Centre for Integrated Radio Frequency (RF) Engineering (CIRFE), a state-of-the-art laboratory at the University of Waterloo. Funded by the Canada Foundation for Innovation, the Ontario Innovation Trust and NSERC, the lab boasts over \$3 million in infrastructure for the conduct of advanced RF research. This includes industrial-caliber design and test tools contributed by CMC.

“COM DEV has collaborated with and hired many top graduates with ‘CMC inside’ from Dr. Mansour’s lab. The acquisition of new microsystems talent is required to replenish our engineering competence and introduce new ideas into our business. Our investment in university research is generating high return. For example, our collaboration with Dr. Mansour has generated several new patent applications. These innovations may be commercialized by our company in the near future,” says Tony Stajcer, Vice President of R&D, COM DEV. COM DEV, the largest Canadian-based designer and manufacturer of space hardware subsystems, has invested \$1.2 million in the NSERC/COM DEV Industrial Research Chair in Filter and Switch Technologies that is held by Dr. Mansour.

“CMC is integral to my lab and the projects I undertake as an industrial research chair,” says Dr. Mansour. “CMC provides our team with access to design tools and fabrication for RF MEMS switches and other projects we currently have underway.”

RF MEMS create new opportunities to improve system performance and generate significant savings in mass, size and power—all critical considerations for the development of smaller, next-generation satellites. [cmc](http://www.cmc.com)