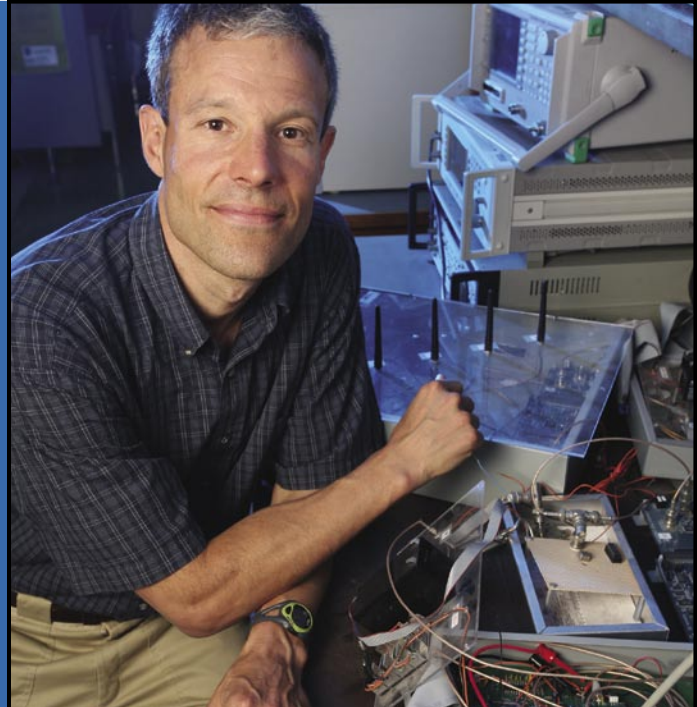


## ‘Smart’ Antennas Pave the Way for Enhanced Wireless Applications

Researchers at Queen’s University are collaborating with BCE Inc. to develop ‘smart’ antennas that will enable a new generation of wireless applications that promise to increase public safety, provide better ways to communicate and conduct commerce, and create new alternatives for entertainment

*“My specialty is designing algorithms, which is on the theory side. Access to prototyping platforms, facilitated by CMC, enables my team to focus on the actual implementation of the concept. It is opening new doors to research that we have never considered before.”*

**Dr. Steven Blostein**  
Professor of Electrical and Computer Engineering  
Queen’s University



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Every day we depend on wireless communication devices that keep us connected, informed and safe—from cellular phones and handheld data assistants, to automotive collision avoidance radar, medical imaging devices and security equipment.

These devices rely on wireless networks to enable the rapid transmission of data and the delivery of timely and accurate information. CMC Microsystems is working with university researchers to accelerate the technology development required to support tomorrow’s wireless devices.

One of these researchers is Dr. Steven Blostein, Professor of Electrical and Computer Engineering at Queen’s University. He is working with telecommunications giant BCE to develop the computational equations required to create a new type of receiver that is capable of processing signals from multiple antennas. While conventional wireless systems use a single receiving antenna, his innovation will allow use of a network of receivers, resulting in high throughput, and faster, more reliable data transmission.

This research is part of the evolution to the next-generation network known as Fourth Generation which promises to increase the speed of data transmission currently available through the Internet using T1, DSL or cable. “We are developing a more adaptive way to use the multiple antennas on the ‘receive side’ of wireless data transmission. This approach has not been investigated extensively anywhere in the world,” says Dr. Blostein, a leading researcher in the field of digital communications and signal processing.

Dr. Blostein relies on tools and technologies provided by CMC to advance his research. This includes field-programmable gate array prototyping platforms delivered through the System-on-Chip Research Network to enable cost-effective simulation of the new receivers. “CMC helps researchers and their collaborators to keep pace with fast-changing wireless communications standards, without always having to replace the existing network infrastructure. This is invaluable to our research.”

BCE and Samsung have sponsored the three-year ‘smart’ antenna project, launched by Dr. Blostein in 2002. He has already secured his first patent for this research and is exploring opportunities to license technologies related to key outcomes from the project. [cmc](#)