



University of Toronto graduate awarded 2018 Colton Medal for microfluidics discoveries

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Transformative research by Dr. Alphonsus Ng into the use of microfluidics for disease detection and analysis has been recognized with CMC Microsystems' 2018 Douglas R. Colton Medal for Research Excellence.

Dr. Ng, a University of Toronto PhD in biomedical engineering, was honored for his development of exciting new applications of digital microfluidics, in which electrical fields are used to manipulate microscopic droplets of water.

Dr. Ng has used this process, which enables researchers to observe and understand the complex workings inside cells, to develop groundbreaking technologies with global applications.

His method for magnetic particle separation in droplets smaller than one-millionth of a liter is now used by academic and industrial researchers around the world. He has also pioneered a method for studying cell-signalling that can detect a variety of diseases, from cancer to diabetes and cardiovascular diseases.

More recently he developed a small, portable lab-on-a-chip rapid diagnostic platform that he and a team successfully field-tested for measles and rubella viruses in Kenya. He has also demonstrated the feasibility of microfluidic magnetic bead-based immunassays.

"Dr. Ng's work is remarkable for its depth of discovery and breadth of applications," says Gord Harling, President and CEO of CMC Microsystems. "His contributions show promise for saving lives and for advancing public health worldwide. He is an outstanding and highly deserving recipient of this award."

Dr. Ng studied at the University of Toronto's Institute of Biomaterials and Biomedical Engineering. He currently holds a prestigious Government of Canada Banting Postdoctoral Fellowship, first as a member of the Caltech Health Group at the California Institute of Technology, and, since April 2018, with J. R. Heath Laboratory at the Institute for Systems Biology in Seattle, WA.

Already in his career, his 27 publications have been cited nearly 1,500 times by other researchers, and he holds one U.S. patent for "Ambipolar Transistor Design." He has also been cited as an outstanding collaborator with global pharma company Abbott Laboratories.

In addition to his Banting Fellowship, as a graduate student Dr. Ng was awarded an NSERC Alexander Graham Bell Canada Graduate Doctoral Program Scholarship valued at \$105,000. In June 2015 he was recognized among U of T's "Grads to Watch – Global Engineering Leaders" in *U of T Engineering News*.

Dr. Ng received his award in Toronto at Innovation 360, Canada's largest annual symposium for micro-nano innovators, co-hosted this year by CMC Microsystems and NanoCanada.

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About this award

Established in 1994 in honour of the founding president of CMC Microsystems, the Douglas R. Colton Medal recognizes excellence in research leading to new understanding and novel developments in microsystems and related technologies, or the application of microsystems and related technologies in Canada. The annual award includes a medal and a monetary prize of \$4,500.