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Dr. Albert Leung

Revolutionary Device Wins \$100,000 Preston Manning Principal Award

Imagine a golf ball that could tell you how far it was hit; running shoes that can report speed and distance to the joggers wearing them; or a balance that can weigh a single living cell.

Dr. Albert Leung's research in the field of micro-machining and micro-fabrication has made all these devices possible through a revolutionary micro-accelerometer that senses speed as well as direction and is five times cheaper to make than any previous device.

"It will also be possible to install a device like this in a crib to monitor motion as subtle as a baby's breath," says Dr. Leung.

Without a doubt, over time many more applications will also emerge as industries realize that the micro-accelerometer can track movement for less than a dollar, has no moving parts, and can be built into something smaller than a pill.

A professional engineer and pro-

fessor at Simon Fraser University in British Columbia, Dr. Leung first thought of his micro-accelerometer on a flight to Vancouver, in 1984. However, it was not until 1994 that he began to work on a serious prototype.

Conventionally made of silicon, the micro-accelerometer is so small and robust, it can tolerate the force of several thousand G's as well as detect tiny millionths of a G. With no technology like it on the planet, NASA has even taken an interest in it for use on Mars.

Closer to home, the global market for inertial sensors like the accelerometer is estimated to be US\$1 billion, mainly for the automotive, petrochemical and bio-medicine industries.

Clearly, Dr. Leung's new technology is destined to become critical to many aspects of 21st century life, making him a most worthy recipient of the \$100,000 Preston Manning Principal Award.

New Advances in Spectrometry Wins \$25,000 Manning Award of Distinction

**Dr. Scott Tanner
and Dr. Vladimir
Baranov**

*\$25,000 Manning
Award of Distinction
winners for their
pioneering work in
mass spectrometry.*



**CanWest Global
Communications Corp.**



*Proud sponsors of
this year's
Young Canadian
Award winners:*

*Jean-Philippe Demers
Robyn Maler
Geoff Olynyk
Oleg Shamovsky*

For years, scientists have longed to do more with the Inductively Coupled Mass Spectrometer (ICP-MS), an instrument used to detect trace elements in matter.

Now, with the development of the Dynamic Reaction Cell (DRC), by Drs. Scott Tanner and Vladimir Baranov of Concord, Ontario, new applications have opened for the ICP-MS never dreamed of before, including the detection of certain toxic elements in food and medical analysis.

“There used to be a veil over much of the periodic table...this is designed to lift the veil,” says Dr. Scott Tanner.

In fact, the DRC is so superior in accuracy and resolution that it has the equivalent capability of finding one single sheet of paper in a hypothetical stack that would cover the distance between the Earth and the Moon.

As both inventors agree, the DRC was produced, in part, by a number of fortuitous events (or accidents) along

with a large dose of curiosity.

As the story is told, by combining equipment in a non-traditional way and testing it with a trace of leftover cleaning solvent (unknown at the time), the two scientists suddenly and surprisingly gained data they had never expected to see.

As a result, their new technology has opened the door for enhanced environmental monitoring, better cancer treatments, more accurate radioactive dating as well as the production of “pure”

semiconductors.

Developed in 1997, today, the DRC is utilized around the globe, including in such facilities as the Mayo Clinic and the Centres for Disease Control.

For their invention of the DRC, Scott Tanner and Vladimir Baranov have won this year’s CanWest Global Communications Corporation \$25,000 Manning Award of Distinction. Congratulations to the winners!



*Dr. Scott Tanner and
Dr. Vladimir Baranov*



Proud Sponsors of the Manning Innovation Awards Annual Dinner

GasAlert Detectors Win \$5,000 Manning Innovation Award

Calgary-based BW Technologies Ltd. has designed more than 20 innovative gas detectors thanks to the vision of founder Cody Slater and vice-president Barry Moore.

Today, GasAlert instruments are used extensively around the world thanks to their unique combination of advanced micro-controllers, sensors and fiber optics.

The instruments are also unique in their abil-



Barry Moore and Cody Slater

ity to function without maintenance or calibration. However, by far, their most novel innovation is the method of radio frequency interfer-

ence protection, which outperforms traditional models and at a lower cost.

For their very successful achievements, Moore and Slater have been awarded The Westaim \$5,000 Manning Innovation Award.

“This truly validates our corporate culture,” says Barry Moore. “Every day, we come to work and ask ourselves how can we do this better,” he says.

Cody Slater and Barry Moore

\$5,000 Manning Innovation Award winners for their GasAlert series of industrial instruments.



James Ham

\$5,000 Manning Innovation Award winner for his work on bass musical instruments.

The Edper Foundation

Canada’s Ace of Bass Wins \$5,000 Manning Innovation Award

The innovative construction methods of bass maker James Ham have earned him an international reputation in the musical community.

For almost 30 years, Ham has been repairing musical instruments in his Victoria, B.C. shop but, since 1995, he’s also turned his hand toward the construction of brand new basses – while also utilizing some brand new ideas.

Ham’s bass instruments are already known for their user-friendly de-

sign, incorporating ergonomic features, but the most innovative feature is the adjustable neck.

Ham’s brilliant design allows the entire neck to move, allowing strings to be raised or lowered according to the individual needs of players or the levels of moisture and humidity. He also handcrafts each instrument.

“Every other field is trying to move forward into the 21st century but I am trying to go back.”



James Ham

In honour of his craftsmanship and revolutionary design work, Ham has been awarded The Edper Foundation \$5,000 Manning Innovation Award.

Hands-Free Crutch Wins \$5,000 Manning Innovation Award

In 1997, after breaking his heel, Lance Matthews set about to invent a device that would replace his crutches and restore his self-sufficiency.

“I found, like everyone else, that using crutches was uncomfortable and limiting,” says Matthews.

His efforts resulted in a hands-free crutch called the iWALKFree, which so impressed doctors and orthopedic technologists at Toronto’s Sunnybrook and Women’s College Health Sciences Centre that they recommended patent protection and an immediate trial of the device.

Testing of the device was facilitated through Sunnybrook’s Fracture Clinic, who made it available to patients with lower-leg injuries. After trial tests were complete, the overall medical conclusion was that the hands-free crutch was well-accepted, easy to use and safe.



Today, in addition to winning the gratitude of many immobilized patients, Lance has also won The Pratt & Whitney \$5,000 Manning Innovation Award. “This is simply great,” says Matthews of winning the award. “It’s wonderful to have somebody notice what you’re doing.”

**Lance
Matthews**

*\$5,000 Manning
Innovation
Award winner for
the iWALKFree
crutch.*



It’s Time to Celebrate Our 20th Anniversary!

The Ernest C. Manning Innovation Awards – one of the country’s most prestigious annual awards programs for Canadian innovators – is now a 20-year tradition.

“It really stemmed from a thought that Canadians seemed to have to go somewhere else before they were recognized,” says Calgary energy executive David Mitchell, President of the Ernest C. Manning Innovation Awards Foundation.

Two decades ago, Mitchell shared his idea to encourage and salute the country’s innovators with Ernest C. Manning. The former Alberta premier, a nationally respected figure, agreed to champion the awards program. Now each year, the Ernest C. Manning Awards Foundation distributes \$135,000 – including the \$100,000 Principal Award – among four leading Canadian innovators, plus an additional \$20,000 among eight young Canada-Wide Science Fair winners.

Since its inception, the totally privately funded foundation has awarded \$2.75 million to Canadian innovators. Recipients say the independent recognition from winning a Manning Award has “provided a level of instant respect,” “made me feel wanted in Canada” and “changed my life.”

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