

Engineering
Innovation
& Entrepreneurship

3RD ANNUAL
CELEBRATION OF
INNOVATION AND
ENTREPRENEURSHIP

THURSDAY, NOVEMBER 16, 2017
5:00 TO 7:00 PM
UNIVERSITY CLUB OF MONTREAL
2047 MANSFIELD ST
MONTREAL, QC H3A 1Y7



INAUGURAL INNOVATION FELLOWSHIPS

The new Innovation Fellowships program supports the development of a technology in order to bring it closer to the marketplace. The program allows graduate and post-doctoral students the opportunity to gain further knowledge and experience in business and technology commercialization. **Two awards of up to \$50,000 each will be announced in this year's inaugural competition.**

The projects have been reviewed by the Associate Dean, Research and Innovation, based on the recommendation of a selection committee composed of alumni who work in relevant technology and business sectors.

Recipients can use the funding to support the completion of project milestones towards the commercialization of their technologies, such as prototype construction, verifying application, field testing, primary market research, and business plan creation.

The inaugural Innovation Fellows for 2016-2017 will be announced at this evening's celebration.

2016-2017 INNOVATION FELLOWSHIPS SELECTION COMMITTEE

Fernando DiCaprio [BEng '87] has over 20 years of experience in design, development and manufacturing of medical devices. Fernando has founded several med-tech companies, and holds over 15 medical device related patents. Fernando is a mechanical engineering graduate from McGill University [Montreal, Quebec] with a Masters of Mechanical Engineering from the University of Notre Dame [South Bend, IN].

Avak Kahvejian is a partner at Flagship Pioneering, a venture capital firm specialized in internal biotechnology innovation and venture creation. A McGill University graduate, Avak was awarded a Canadian Institutes of Health Research grant as a co-investigator and was selected for the Dean's Honour List upon graduation.

Naser Partovi [BEng '80 MEng '81] is Founder and CEO of Sanitas Inc., a startup company focused on developing outpatient management software for patients with chronic conditions. He is also president of Salzburg Investments Inc., focusing on investment opportunities. In addition, he is a member of the Faculty Advancement Board.



THE WILLIAM AND RHEA SEATH AWARDS SUPPORT INNOVATIVE RESEARCH AT THE FACULTY OF ENGINEERING. THEY WERE MADE POSSIBLE THROUGH THE GENEROSITY OF ALUMNUS, THE LATE WILLIAM SEATH, BENG '52. THE AWARDS RECOGNIZE OUTSTANDING WORK BY ENGINEERING, ARCHITECTURE AND URBAN PLANNING STUDENTS AND PROFESSORS WHO CONDUCT INNOVATIVE RESEARCH WITH POTENTIAL FOR COMMERCIALIZATION.

ANNUAL CALLS FOR APPLICATIONS TO THE WILLIAM AND RHEA SEATH AWARDS COMPETITION ARE MADE IN THE FALL. THE CALL FOR APPLICATIONS IS NOW OPEN, ACCEPTING APPLICATIONS UNTIL 5:00 PM EST ON FRIDAY, DECEMBER 1, 2017 WITH WINNERS BEING ANNOUNCED IN EARLY SPRING 2018. UP TO TWO EQUAL AWARDS OF \$27,000 WILL BE GIVEN IN THIS YEAR'S COMPETITION.

APPLICATIONS ARE REVIEWED AND AWARDED BY THE DEAN OF ENGINEERING AND A REVIEW COMMITTEE COMPOSED OF FACULTY, INDUSTRY AND ALUMNI REPRESENTATIVES. WINNERS USE THE AWARDS TO SUPPORT COMMERCIALIZING THEIR RESEARCH.

EXAMPLES OF ELIGIBLE SUPPORT INCLUDE DEVELOPMENT, TESTING, PROTOTYPE CONSTRUCTION, SPECIFIC MARKET RESEARCH, CREATION OF A BUSINESS PLAN AND REDUCTION IN TEACHING TIME FOR PROFESSORS, OR SALARY STIPENDS FOR STUDENTS.

2016-2017 WILLIAM AND RHEA SEATH AWARD WINNERS IN ENGINEERING INNOVATION

PROFESSOR
SUBHASIS GHOSHAL

DR. SOURJYA
BHATTACHARJEE

DR. WILLIAM LEPRY

PROFESSOR SHOWAN NAZHAT

DR. FALEH TAMIMI

[FACULTY OF DENTISTRY]

PROJECT TITLE:

Scale Up of Novel Biphasic Process for the Treatment of Chlorinated Solvents with Reactive Iron Nanoparticles

PROJECT TITLE:

Remineralizing Toothpaste for Treatment of Tooth Hypersensitivity

Summary:

Extensive industrial use and improper disposal have resulted in the widespread contamination of groundwater aquifers and soils with neurotoxic, carcinogenic chlorinated solvents such as tetrachloroethylene (PCE) and trichloroethylene (TCE). We have developed a novel, cost effective, nanotechnology-based, non-aqueous phase treatment process that rapidly transforms PCE and TCE into non-toxic gases, ethene and ethane, and chloride ions, which can be recovered and reused. The limited amounts of reagents required and the generation of commercially relevant end products make this a lower environmental footprint system than existing alternatives. Through this award, we propose to scale up and demonstrate the successful treatment of PCE and TCE in a pilot scale reactor with maximized material recycle and recovery.

Summary:

It is estimated that more than half of the adult population suffer from dentine hypersensitivity, a common condition that results in sharp bouts of pain originating from the mouth when teeth are exposed to external stimuli. Treatment methods include desensitizing agents in mouthwash or chewing gum, but more recently there has been a drive towards the addition of mineralizing agents, such as bioactive glass, in toothpastes. However, the slow dissolution rate of the current glass formulations is far from ideal for dental applications. Our team has developed sol-gel derived borate glasses with remarkable conversion rates to the mineral present in dentine. In this application, we intend to exploit this mineralizing capacity by combining the novel glass formulation with toothpaste, to provide rapid dentine hypersensitivity relief. This award will prove vital in the progression of this technology by providing critical funds to carry out in vitro testing using human dentine models.

2016-2017

WILLIAM AND

RHEA SEATH

AWARDS REVIEW

COMMITTEE

PROFESSOR
MARTA CERRUTI

DR. SIMON TRAN
[FACULTY OF DENTISTRY]

DR. FALEH TAMIMI
[FACULTY OF DENTISTRY]

DR. REZA FARIVAR
[FACULTY OF MEDICINE]

DR. MONZUR MURSHED
[FACULTY OF DENTISTRY]

PROJECT TITLE:
Polymer Coating Technology
for Biomedical Applications

Summary:

Synthetic polymeric materials are used in cell culturing and tissue engineering as platforms to enhance cell attachment, proliferation and activity, and to promote healing of injured or missing tissues. Despite being biocompatible, most synthetic polymers do not allow easy integration with cells or tissues. Thus, the surface of a polymer needs to be modified prior to any biomedical application. Current technologies result in layers that are unstable, inhomogeneous, and often degrade the polymer, in addition to being expensive and not applicable on complex geometries. We have developed a simple technology to modify polymer surfaces to promote cell adhesion and improve in-vivo performance. With the WRSA funds, we will be able to move on to commercialization.

Côme Laguë [BEng '89] is CEO of Zetta Research, an intellectual property management company that acquires, develops and sells portfolios of patents from startups and inventors. Mr. Laguë is a member of the Faculty of Engineering Advancement Board.

Professor Gordon W. Roberts received a B.A.Sc. degree from the University of Waterloo, and M.A.Sc. and Ph.D. degrees from the University of Toronto, all in electrical engineering. At McGill University, he holds the James McGill Chair in Electrical and Computer Engineering. He is a Fellow of the IEEE.

Kingston Duffie [BEng '88] has founded three successful venture-backed Silicon Valley startups and is working on his fourth, HivePoint, which focuses on using artificial intelligence to create novel solutions for enterprise sales teams.

Dr. Maurizio Cattaneo [MEng '86, PhDEng '90], Founder and Director of BioVolutions Inc., has 15 years' experience in process and product development and drug delivery. He received his Ph.D. in Chemical Engineering at McGill University.

2016-2017 TECHACCEL AND TECHACCEL R GRANT RECIPIENTS

The TechAccel Grants help students jump-start their technologically-based ideas that have business potential and social impact. These grants come out of the Faculty of Engineering Innovation Fund*, which is supported by charitable gifts from alumni and other community donors. They are available throughout the year and can reach up to \$10,000 per project. Applications are reviewed every two to four weeks by members of the Innovation Committee.

The TechAccelR Grants are intended to help professors accelerate their research-based ideas that are reported as inventions but need further validation prior to commercialization. These grants come out of the Innovation Fund*, which is funded by charitable gifts from alumni and other community donors. They are available throughout the year and can go up to \$7,500 per project. Applications are reviewed every two to four weeks by members of the Innovation Committee.

Lumbrick

Ghalia Baki (Civil Eng Masters.),
Amir Abushanab (Comp. Science)
Judith Li (B.Com.)
Sarah Pellerin (B.Arts)

Bluhen

Adeola Odusanya (Chem. Eng Masters.)

SokoMtaani

Marvin Ambutu (ECE Undergrad),
Brian Kirotych (Comp.Sci.)

Immersed

Karem Elkayar (Chem.Eng Masters),
Samy Zarour (Comp.Science)

Dialysave

Shawana Habib (Mech.Eng Undergrad),
Anya Pogharian, Vivian Eberle (Bcom)

CognitiveChem

Karam Thomas (Chem.Eng Undergrad),
Khanh Nguyen

DomeAge

Stasik Nemirovsky (Mech.Eng Undergrad)
Rami Chahine

INNOVATION COMMITTEE MEMBERS

The Innovation Committee is responsible for evaluating the commercial potential and feasibility of the projects presented by applicants from the Faculty of Engineering. The members of the 2016-2017 committee are:

Pasquale Di Piero (BEng '76)

Howard Stotland (BEng '66)

Mark Levine (BEng '91)

**Omar Zahr ([PhD Chemistry 2015,
invited reviewer])**

TechAccelR

Physiological confirmation of stimulus reception
Professor Jeremy Cooperstock (ECE) and Pascal
Fortin, PhD student (ECE)

Summary: Today's electronic handheld devices are incredibly sophisticated, but they all lack the ability to assess if a signal presented to a user was effectively perceived. Using an off-the-shelf wearable skin conductance sensor, this new concept can accurately detect if a stimulus was perceived by a receiver. It operates by measuring the galvanic skin response, characterized by modifications in the skin's resistance due to activation of the sweat glands. This invention has the potential to drastically modify current mobile communication technologies.

* The Innovation Fund is not an investment fund. Donors are not investing in companies. Donations made by donors are charitable contributions, which may be tax deductible.

2016-2017 IAN MCLACHLIN PRIZE FOR ENTREPRENEURSHIP IN ENGINEERING

AMIR ABUSHANAB

[COMPUTER SCIENCE, UNDERGRADUATE
STUDENT]

MAHMOUD ASSRAN

[ELECTRICAL AND COMPUTER ENGINEERING,
GRADUATE STUDENT]

GHALIA BAKI

[CIVIL ENGINEERING, GRADUATE STUDENT]

PROJECT TITLE:

Lumbrick – a heating and
cooking solution with
application in refugee camps
and sub-Saharan Africa

PROJECT TITLE:

Ad-hoc – self-healing
intelligent network

Summary:

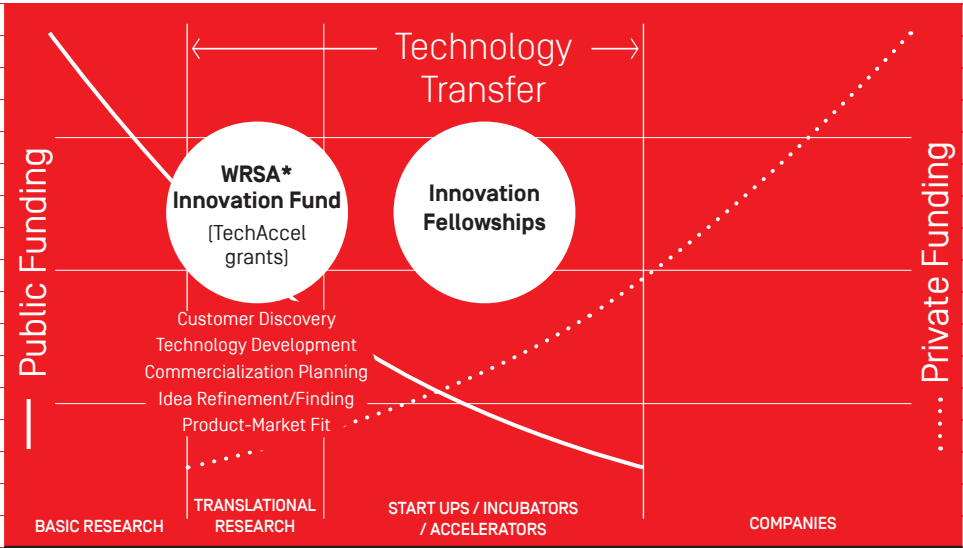
Lumbrick's concept is to transform local waste materials into combustible briquettes. A secondary goal is to help refugees become entrepreneurs by selling the briquettes at competitive prices to end-users. Their solution has already attracted attention: in addition to reaching the finals at the Hult competition, in June they won a \$30,000 prize at the World Vision Social Innovation Challenge and they received a grant from the Stardust-Startup Factory.

Summary:

Access to information, such as that available on the Internet, is undeniably invaluable, however many communities throughout the world do not have the infrastructure in place to provide such access. The idea is to create an innovative networking solution working at all 5-layers of the Open Systems Interconnection model to provide a low-cost decentralized solution to offline internet access.

THE INNOVATION FUND NEEDS YOUR SUPPORT

The Innovation Fund supports entrepreneurial activity in the Faculty of Engineering through a number of multi-level awards and grants, as shown in the chart below.



Educational Pipeline Continuum

*William and Rhea Seath Awards

Innovation Fund [TechAccel grants] → WRSA* → Innovation Fellowships

The fund needs your support through:

- An annual contribution [suggested value of \$1K]
- Direct funding an award through a gift
- Establishing a named endowment within the Innovation Fund

THE INNOVATION FUND IS BEING SUPPORTED BY ALUMNI:

JIM & BARBARA BRODEUR [BEng '56]

CAESAR CESARATTO [BEng '70]

IAN MCLACHLIN [BEng '60]

MARK LEVINE [BEng '91]

PASQUALE DI PIERRO [BEng '76]

ARTHUR LEVINE [BEng '61]

FONEX DATA SYSTEMS INC.

HOWARD STOTLAND [BEng '66]

THE ANNA & LOUIS VIGLIONE [BEng '78] FOUNDATION

ROBERT WALSH [BEng '65]

For more information on how you can get involved in supporting entrepreneurship in the Faculty, contact:

Mr. Krish Dasgupta
Director of Development
University Advancement Office
Faculty of Engineering
Tel: 514-398-2016
E-mail: krishanu.dasgupta@mcgill.ca