

DONALD ROBERT SADOWAY

Honourary Degree Citation by Doug D. Perovic

Don Sadoway, the John F. Elliott Professor of Materials Chemistry at the Massachusetts Institute of Technology, is internationally recognized, both as an educator and a researcher- a vicious two-punch combination that makes him a true champion amongst engineers world-wide.

Don was born in Toronto and was destined to attend U of T's Engineering Science program (Materials Science Option). He subsequently completed both MASC and PhD degrees in the Department of Metallurgy and Materials Science (as it was then known) under the supervision of the late Prof. Spiro Flengas, a world leader in the field of electro-metallurgy. His early successes confirmed in Don's mind that his future lay with academia. In 1977 he was awarded a NATO post-doctoral fellowship, which took him to MIT. Within a year he becomes an Assistant Professor at MIT and in a very short time demonstrated how his years in Eng Sci and MSE at U of T served as a powerful springboard for the prestigious professional career that made Don Sadoway a giant in the world of applied science and engineering.

Dr. Sadoway is one of the world's foremost researchers in the area of materials engineering for energy-storage technologies. His 2012 talk given at the prestigious Technology-Entertainment-Design Conference (better known as TED) has logged about 1.5M views on-line. Don spoke about "The Missing Link to Renewable Energy". Using a chalkboard, Don describes how he invented the liquid metal battery, constructed from low-cost, domestically available, earth-abundant resources, that is designed for use in stationary energy storage applications. Dr. Sadoway and his team have shown us how to store power from alternative energy systems such as wind and solar so that it can be delivered to the energy grid at any time, even when the wind isn't blowing and the sun isn't shining.

In announcing its funding of Dr. Sadoway's work, to the tune of \$9M, the U.S. Advanced Research Projects Agency for Energy (ARPA-E) said that this battery technology "could revolutionize the way electricity is used and produced on the grid, enabling round-the-clock power from America's wind and solar power resources, increasing the stability of the grid, and making blackouts a thing of the past." With backing from supporters such as Bill Gates, Dr. Sadoway and two of his students created the Liquid Metals Battery Corporation (now rebranded as Ambri) to bring this new type of battery to market.

In addition to his research accomplishments, Dr. Sadoway is a world-renowned lecturer and educator, inspiring young minds for over 30 years. His lecture style is unique in that his lessons extend far beyond science and engineering principles. What makes Don truly exceptional is his effort to place the science in a cultural context, incorporating literature, music, and popular culture into his lectures. Although I have not lectured to UGs in a tuxedo or served champagne at the last class of term, Don did inspire me years ago to start my classes with music- Don you chose classical, I chose The Beatles!

Dr. Sadoway is particularly renowned for his instruction of “Introduction to Solid-State Chemistry”, a first-year undergraduate course at MIT. The combination of his teaching methodology and his unique lecture style has made the course one of the largest and most sought-after classes at MIT. In 2007 the number of students registering for the course reached 570, over half the freshman class. As such, MIT had to take the unprecedented step of streaming digital video of the lecture into an overflow room to accommodate all the students interested in taking the course. The popularity of this course has reached outside of the MIT campus as a result of the MIT OpenCourseWare initiative. This is seen in a comment by Bill Gates to the Seattle Post-Intelligencer; "Everybody should watch chemistry lectures -- they're far better than you think. Don Sadoway, MIT -- best chemistry lessons anywhere. Unbelievable!"

Not one to forget his alma mater, Don has returned to U of T on many occasions. During my term as Chair, Don served on the Board of Advisors for MSE, a Board of influential leaders whose advice and influence led MSE on an accelerated trajectory towards international preeminence. In 2010, he was the inaugural speaker for MSE’s annual Winegard Visiting Lectureship. Don will return this coming academic year to lecture at the Eng Sci Education Conf and to participate in MSE’s 100-yr anniversary celebrations.

Don’s success reflects qualities that underpin all his achievements: superlative intellect, a curious, creative, innovative and inventive mind, a commitment to excellence... he is persistent, productive and imaginative. I could spend much more time telling you about his achievements in the engineering world. However, what speaks more loudly is Don’s stature in the mainstream. In April 2012, Dr. Sadoway was included in TIME Magazine’s list of the “100 Most Influential People in the World.” What I think is even more amazing is that an engineer made it to the late night talk show circuit. Go online and see how Don spars with the excitable and sarcastic Stephen Colbert on “The Colbert Report”. Even though Colbert likens Don’s liquid metal battery to an “unappetizing grilled cheese sandwich” and then asks him how his battery is better than a lemon with two nails, Don does us proud. In Don’s own words: “In a battery I strive to maximize electrical potential. When mentoring students, I strive to maximize human potential. The liquid metal battery story is more than an account of inventing technology, it’s a blueprint for inventing inventors.”

Mr. Chancellor, on behalf of the Governing Council, I ask that you to confer the degree of Doctor of Engineering, *honoris causa* upon Donald Sadoway.