

Nobel laureate receives Breakthrough Prize in Fundamental Physics

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Queen's University Professor Emeritus and Nobel laureate Arthur McDonald, representing the Sudbury Neutrino Observatory (SNO) Collaboration, has received the 2016 Breakthrough Prize in Fundamental Physics.

"Our collaboration members are very pleased to receive this testimony to the scientific significance of their work," says Dr. McDonald. "Our findings are a result of many years of hard work starting in 1984, led by George Ewan of Queen's University and Herb Chen of the University of California, Irvine."

Founded by Russian entrepreneur, venture capitalist and physicist Yuri Milner, the Breakthrough Prize in Fundamental Physics recognizes individuals who have made profound contributions to human knowledge. It is open to all physicists—theoretical, mathematical and experimental—working on the deepest mysteries of the Universe. The prize is one of three awarded by the Breakthrough Foundation for outstanding contributions in life sciences, [fundamental physics](#), and mathematics.

The SNO collaboration was selected by the Breakthrough Prize Foundation "for the fundamental discovery of [neutrino oscillations](#), revealing a new frontier beyond, and possibly far beyond, the standard model of particle physics."

"I want to offer my heartfelt congratulations to Dr. McDonald and all of

the SNO partners and collaborators on receiving the Breakthrough Prize," says Daniel Woolf, Queen's Principal and Vice-Chancellor. "Dr. McDonald and his team at SNO have made a tremendous contribution to our understanding of the world around us and opened up new possibilities in the study of astrophysics. Queen's University is proud to have supported their groundbreaking research."

Research at the Sudbury Neutrino Observatory took place two kilometres underground in Vale's Creighton mine near Sudbury, Ontario. Their findings demonstrated that neutrinos change their type - or flavour - on their way to Earth from the sun, a discovery that requires neutrinos to have a mass greater than zero. The results also confirmed the theories of energy generation in the sun with great accuracy.

"At Queen's we have fostered a culture of research excellence and strongly encourage and support the collaborative efforts of our researchers," says Dr. Steven Liss, Vice-Principal (Research). "This prize is truly indicative of how fundamental research can have a transformative impact on how we view the nature of matter and the universe, and the monumental role that university research plays in addressing some of the world's most difficult questions and challenges."

The award was presented at a ceremony on Nov. 8 at the NASA Ames Research Centre in Moffett Field, California.

The \$3-million prize is shared with four other international experimental collaborations studying neutrino oscillations: The Superkamiokande, Kamland, T2K/K2K and Daya Bay scientific collaborations.

A one-hour, condensed recording of the ceremony is scheduled for broadcast on Fox on Nov. 29, at 7 p.m.

Provided by Queen's University

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