

## Neil Turok

### Director of Perimeter Institute for Theoretical Physics

Dr. Neil Turok earned his PhD at Imperial College. He was appointed Associate Scientist at Fermilab before moving to Princeton University, where he became Professor of Physics in 1994. In 1997, he was appointed to the Chair of Mathematical Physics in the Department of Applied Mathematics and Theoretical Physics (DAMTP) at the University of Cambridge. In October 2008, he moved to the independent [Perimeter Institute for Theoretical Physics](#) as its new Director. Among his many honours, he was awarded Sloan and Packard Fellowships and the 1992 James Clerk Maxwell medal from the UK Institute of Physics.

Dr. Turok has worked in a number of areas of theoretical physics and cosmology, focusing on developing fundamental theories and new observational tests. In the early 1990s, his group showed how the polarization and temperature anisotropies of the cosmic background radiation would be correlated, a prediction confirmed in detail by recent precision measurements. The team also developed a key test for the presence of the cosmological constant, also recently confirmed. With Stephen Hawking, he later developed the Hawking-Turok instanton solutions describing the birth of inflationary universes.

With Paul Steinhardt at Princeton, Dr. Turok developed a cyclic model for cosmology that explains the big bang as a collision between two “brane-worlds” in M-theory. In 2006, Steinhardt and Turok showed how the model naturally allowed the cosmological constant to relax to very small values, consistent with current observations. Steinhardt and Turok co-authored *Endless Universe: Beyond the Big Bang*, a popular science book. A related multimedia talk on the subject, entitled [What Banged?](#), is viewable online.

Dr. Turok also delivered Canada’s 2012 Massey Lectures, [The Universe Within: From Quantum to Cosmos](#), involving a book from House of Anansi Press, a cross-country tour, and broadcasts on CBC Radio One’s *Ideas* series. The lectures examined why *scientific knowledge is our most precious possession and how the future will be shaped by breakthroughs to come – including transformations through quantum technologies that will supplant our current digital age.*

Born in South Africa, Dr. Turok founded the African Institute for Mathematical Sciences (AIMS), which opened in 2003. Based in Cape Town, this postgraduate educational centre supports the development of mathematics and science across the African continent (see [www.aims.ac.za](http://www.aims.ac.za) and [www.nexteinstein.org](http://www.nexteinstein.org)). For this work and his contributions to theoretical physics, Dr. Turok has been recognized with a [TED Prize](#) and awards from the World Summit on Innovation and Entrepreneurship (WSIE) and the World Innovation Summit on Education (WISE).

### Major Positions:

<b>Director</b>	Perimeter Institute for Theoretical Physics	2008-Present
<b>Chair of Mathematical Physics</b>	Department of Applied Mathematics and Theoretical Physics, University of Cambridge	1997-2008
<b>Professor</b>	Physics Department, Princeton University	1994-1997

