

Astrophysics Lecture Series

Leacock Bulding, Room 132, McGill University downtown campus

Black Holes, New Worlds and the Universe

The Origin of the Universe and the Arrow of Time

October 19th 2009, 6pm



Professor

Sean Carroll

California Institute of Technology

One of the most obvious facts about the universe is that the past is different from the future. The world around us is full of irreversible processes: we can turn an egg into an omelet, but can't turn an omelet into an egg. Physicists have codified this difference into the Second Law of Thermodynamics: the entropy of a closed system always increases with time. But why? The ultimate explanation is to be found in cosmology: special conditions in the early universe are responsible for the arrow of time. I will talk about the nature of time, the origin of entropy, and how what happened before the Big Bang may be responsible for the arrow of time we observe today.

September 21st 2009, 6pm



Professor

Sara Seager

**Massachusetts Institute
of Technology**

*Origins and Aliens:
The Search for Other Earths*



THE UNIVERSE
YOURS TO DISCOVER



INTERNATIONAL YEAR OF
ASTRONOMY
2009

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