

Carnegie's Mark Phillips to share Breakthrough Prize in Fundamental Physics

November 14 2014

Carnegie astronomer Mark Phillips, interim director of the Las Campanas Observatory, is one of a group of scientists being honored with the Breakthrough Prize in Fundamental Physics.

The [prize](#) recognizes "major insights into the deepest questions of the Universe" and is being shared by two research teams, the Supernova Cosmology Project and the High-Z Supernova Search Team, of which Phillips is a member.

Working independently, the two teams discovered that the universe's expansion is accelerating rather than slowing down, reversing a long-held assumption and implying the existence of a repulsive "dark energy" that permeates the universe.

As part of the High-Z Supernova Search Team Phillips was a pioneer in demonstrating that supernovae, the gigantic thermonuclear explosions certain kinds of stars undergo at the end of their lifecycles, can be used as so-called "standard candles" to measure the geometry and expansion of the universe.

Standard candle is a term used by astronomers for objects so bright that they can be used to measure distances. Imagine somebody walking away from you while carrying a candle. The candle would appear dimmer the farther from you it traveled, and its apparent brightness would reveal just how far it had gone.

"Carnegie is very proud of Mark's contributions to our understanding of the universe's fundamental nature," said Carnegie President Matthew Scott. "We are honored by his recognition from the Breakthrough Foundation."

Phillips, who aided in the discovery while at the Cerro Tololo Inter-American Observatory (CTIO) in Chile, moved to Carnegie from CTIO in 1998.

The team of honorees also includes former Carnegie postdoctoral fellow Nick Suntzeff (1982-1986), who was on the High-Z Supernova Search Team, as well as former Carnegie fellow Greg Aldering (1989-1993) and former Carnegie postdoctoral fellow Andrew Fruchter (1998-1990). Aldering and Fruchter were part of the other team involved in this discovery, the Supernova Cosmology Project.

The Breakthrough Prize Foundation awarded the two teams—a total of 51 individuals—\$3 million. The award is granted by a group of Internet and technology entrepreneurs: Sergey Brin and Anne Wojcicki; Jack Ma and Cathy Zhang; Yuri and Julia Milner; and Mark Zuckerberg and Priscilla Chan.

Together the two groups were also awarded the Gruber Prize in Cosmology in 2007, and their work was also recognized by the 2011 Nobel Prize in Physics.

Provided by Carnegie Institution for Science

Citation: Carnegie's Mark Phillips to share Breakthrough Prize in Fundamental Physics (2014, November 14) retrieved 10 April 2024 from <https://phys.org/news/2014-11-carnegie-phillips-breakthrough-prize-fundamental.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.