For more than a century, the Carnegie Observatories has been a world center of astronomical research. Although relatively small, the Observatories’ renowned scientific staff has had a tremendous impact on the course of astronomy, and continues to lead the search for answers to fundamental questions about the origins, size, shape, and structure of the Universe. More than ever, the Observatories today is a haven and model for unfettered research, collaboration, and discovery on an international scale.

In 1904, George Ellery Hale established The Observatories in Pasadena, and built the 60-inch and 100-inch telescopes on Mount Wilson – at the time of their completion, the largest in the world. With these instruments, Carnegie astronomer Edwin Hubble discovered that the Universe is larger than the Milky Way, and that it is expanding. In 1969, the focus of Carnegie observations moved to Las Campanas Observatory, high in the pure atmosphere of Chile’s Atacama Desert.

Today, Carnegie astronomers study light collected from the clear skies above Las Campanas using the Magellan Telescopes’ twin 6.5-meter mirrors that are among the largest and most efficient reflectors in the world. Las Campanas is also the future home for the Giant Magellan Telescope (GMT), which will be far more powerful than any telescope ever built. To be inaugurated in 2020, the GMT will help Carnegie astronomers and others continue to answer many of the questions at the forefront of astrophysics today.
All four lectures will be held at A Noise Within, the theater located at 3352 East Foothill Boulevard, Pasadena, CA 91107 (just north of the 210 Freeway; use the Madre Street exit). There is ample free parking on site. Visit www.anoisewithin.org for directions and more information.

All lectures are free and open to the public, but seating is limited. Please arrive early.

Doors open at 7:00 PM, and all lectures start at 7:30 PM. Light refreshments will be served before each Lecture.

The 2014 Astronomy Lecture Series is organized by Dr. John Mulchaey, Associate Director for Academic Affairs. For more information, please contact 626.304.0250 or visit www.obs.carnegiescience.edu

**Monday, April 7**

**Making Earth-Like Planets: Five Great Mysteries**

Dr. Linda T. Elkins-Tanton  
Director, Department of Terrestrial Magnetism  
Carnegie Institution for Science

The search for life within and beyond our solar system is one of today’s most exciting directions in astronomy. Astronomers and scientists in other disciplines are collaborating to discover how the processes of planetary evolution combine to produce a habitable planet, as defined by one indispensable ingredient: liquid water. Dr. Elkins-Tanton will discuss the mysteries of planetary formation — where Earth’s water came from, whether our solar system is average or unusual, how dust around young stars could accrete into planets, and much more.

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**Monday, April 21**

**Beyond Hubble: New Space Telescopes to Explore the Cosmos**

Dr. Alan Dressler  
Staff Astronomer  
The Carnegie Observatories

The Hubble Space Telescope has revolutionized our understanding of stars, galaxies, and the nature of our vast universe, and has blazed a trail to new journeys that lie beyond Hubble’s reach. Dr. Dressler will describe several future space telescopes – some already in fabrication, others on the technological horizon. These “virtual spaceships” will carry us to the end of our journey to understand the birth of stars and galaxies – the dawn of the modern universe – and will launch new quests to locate other worlds like Earth that may be habitable, or even inhabited.

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**Monday, May 5**

**The Biggest Eyes on Earth: Building the Giant Magellan Telescope**

Dr. Wendy Freedman  
Crawford H. Greenewalt Chair and Director, The Carnegie Observatories

High in Chile’s Atacama Desert, construction of the largest telescope ever created is underway: the Giant Magellan Telescope, ten times more powerful than the Hubble Telescope. Dr. Freedman, head of the international GMT consortium, will discuss the complex teamwork involved in building this extraordinary instrument, and how the GMT will increase our understanding of dark matter and dark energy, the evolution of galaxies, the exciting field of exoplanets, and more. The GMT caps more than a century of leadership by the Carnegie Observatories in telescope technologies and contributions to our knowledge of the universe.

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**Monday, May 19**

**Seeing the Invisible: What is Dark Matter?**

Dr. Andrew Benson  
George Ellery Hale Distinguished Scholar in Theoretical Astrophysics, The Carnegie Observatories

Astronomy tells us that most of our universe is made from so-called “dark matter” – an invisible substance that holds together galaxies and clusters of galaxies. But how can we study something that we can’t see? Dr. Benson will describe the many ingenious ways that astronomers have found – and continue to find – to understand the nature of dark matter, including looking at how light from distant galaxies is deflected by gravitational lensing, and searching for the smallest galaxies in the universe.