2015 LECTURE SERIES
THIRTEENTH SEASON

ALL LECTURES ARE AT
A NOISE WITHIN

The Theatre is located at
3352 East Foothill Boulevard
Pasadena CA 91107
(just north of 210 Freeway via Madre Street exit)
Free parking on site
Directions: www.anoisewithin.org

THE LECTURES ARE FREE AND
OPEN TO THE PUBLIC.
SEATING IS LIMITED, SO PLEASE
ARRIVE EARLY.

DOORS OPEN AT 6:45 PM. Each Lecture
will be preceded by a brief musical
performance by students from the
Pasadena Conservatory of Music or
The Colburn School.

LECTURES START AT 7:30 PM.
Light refreshments are served before each Lecture.

More information: 626.304.0250 or
www.obs.carnegiescience.edu

The Carnegie Observatories is pleased to hold
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California’s only classical repertory theater.
The current season includes The Threepenny
Opera, Figaro, and Julius Caesar. For more
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Founded in Pasadena in 1904, THE CARNEGIE
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The light we see with our eyes only tells a small part of the Universe’s story. To get a complete picture of how the Universe works, astronomers must study objects over the full range of light, the electromagnetic spectrum. This includes gamma rays, X-rays, ultraviolet, visible, infrared, microwaves and radio waves. Each type of light requires different instruments, and provides unique information about the source that emitted it. Dr. Mulchaey will explain how Carnegie astronomers and their colleagues are combining observations across the electromagnetic spectrum to help solve the mysteries of the Universe.

Black holes remain among the most enigmatic objects in the universe. Using both computer simulations and traditional analytic theory, Dr. Kollmeier is making major discoveries showing how tiny fluctuations in density in the early universe have become the galaxies and black holes that we see after 14 billion years of cosmic evolution. In this Lecture, Dr. Kollmeier will review our basic knowledge of black holes and explore outstanding mysteries regarding their formation and structure.

The expanding universe was discovered at Mount Wilson almost 100 years ago. But there is something new! In the past 20 years, astronomers have found that cosmic expansion is speeding up, driven by a mysterious “dark energy” whose nature we do not understand. Dr. Kirshner, one of today’s preeminent astrophysicists, is the recipient of many prestigious awards, including the 2014 Breakthrough Prize in Fundamental Physics (sponsored by Google, among others), as well as the 2014 James Craig Watson Medal of the National Academy of Sciences for “service to astronomy.”