

# Out of this World Astronomy Lecture Series

## **Dark Matter: Seeing the Unseable** Tuesday, March 20, 7:00 pm

In this talk, University of Connecticut Physics student Sam Cutler will give an overview of dark matter as a whole and the key observations that led to the discovery of dark matter, as well as present ongoing research pushing our understanding to new frontiers. Dark matter makes up more of the universe than baryonic matter (everything we can see with light), but astronomers know almost nothing about it or its properties. Everything we know about the universe we know because we can detect light coming from it, so how do we even know dark matter exists and is so abundant? By studying dark matter's effect on nearby baryonic matter, which we can see, astronomers can not only tell where dark matter is, but also how much there is, the density of dark matter there, and even what properties elementary dark matter particles have.

## **Astronomer's Search for Neighboring Earths** Tuesday, April 3, 7:00 pm

Humans have no doubt reflected on the likelihood of being alone - or not - in the universe since our brains had that capability. We, now, are savoring the great fortune of being alive when that question may possibly be answered with certainty, in the positive. The 4-year Kepler mission (2008-2012) and countless special documentaries have done much to popularize the search for other planets. Most of those found were, in lay terms, "interesting" because they were planets which, until 25 years ago, had been presumed to likely exist but thought to be impossible, or nearly so, to detect. That, of course, has changed. We've detected over 4,000 candidate planets around other stars. This presentation will discuss the short history of contemporary exoplanet search efforts, what the Kepler mission unveiled and how the upcoming TESS mission, to find nearby Earth-like planets, differs. Also described, will be how audience members can join thousands of others, worldwide, in helping in that search. Presenter Claudio Veliz pursues twin professions in architecture and astronomy.

## **Mapping the Heavens with Priyamvada Natarajan** Tuesday, May 8, 7:00 pm

From time immemorial humans have been charting the night sky and trying to make sense of it and contemplating their place in the cosmos. Natarajan will recount the evolution of celestial map-making and show how maps literally track our ever-evolving cosmic view, tracing our understanding of the universe, its contents, and its evolution. She also will talk about recent developments in our understanding of two invisible entities: dark matter and black holes. Priyamvada Natarajan is a professor of astronomy and physics at Yale University. Her book, *Mapping the Heavens: The Radical Scientific Ideas That Reveal the Cosmos* is published by Yale University Press.

These lectures are co-sponsored by the Keene Amateur Astronomers Club.  
Want to find out more about the club? Visit [keeneastronomy.org](http://keeneastronomy.org).



### **Keene Public Library**

60 Winter St.

Keene, New Hampshire 03431 | 603-352-0157

<http://keenepubliclibrary.org/>