

# Western Science

Western University  
DEPARTMENT OF PHYSICS AND ASTRONOMY

## ELIZABETH LAIRD MEMORIAL LECTURE

Monday, 6<sup>th</sup> November 2017

5:00 p.m.

Spencer Engineering Bldg. Room 1059

Reception to follow

## Dr. C. Megan Urry

Israel Munson Professor of Physics and Astronomy  
Director – Yale Center for Astronomy and Astrophysics  
Yale University

### *Black Holes, Galaxies, and the Evolution of the Universe*

**Abstract:**

Over the past 13.7 billion years, billions of galaxies developed across the Universe, each containing up to 100 billion stars. Simultaneously, very massive black holes grew at the center of those galaxies, by accreting surrounding matter; the most rapidly growing of these are called Active Galactic Nuclei, or AGN. The energy an AGN releases into its host galaxy can strongly influence its evolution. Indeed, theorists use this kind of “feedback” mechanism in cosmological simulations, in order to match the galaxy population today. So black holes are an important influence on the Universe, including our own Milky Way galaxy. We use multi-wavelength infrared+optical+X-ray surveys to carry out a census of black hole growth, including in the heavily obscured systems that are undetected in optical/ultraviolet surveys. By developing a population model matched to the data, we find that most black hole growth must in fact be obscured. Also, we see that galaxy mergers may trigger some AGN, eventually leading to black hole mergers that generate strong gravity waves – a new probe of black hole evolution.

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## Biography:

Meg Urry is the Israel Munson Professor of Physics and Astronomy and Director of the Yale Center for Astronomy and Astrophysics; she served as Chair of the Physics Department at Yale from 2007 to 2013. She is currently Past President of the American Astronomical Society (the last in a 4-year term). Professor Urry received her Ph.D. from the Johns Hopkins University and her B.S. in Physics and Mathematics summa cum laude from Tufts University. Her scientific research focuses on active galaxies, which host accreting supermassive black holes in their centers. She has published over 270 refereed research articles on supermassive black holes and galaxies and was identified as a "Highly Cited Author" by Thomson Reuters. Prof. Urry is a Fellow of the American Academy of Arts and Sciences, the National Academies of Science, the American Association for the Advancement of Science, the American Physical Society and American Women in Science; received an honorary doctorate from Tufts University; and was awarded the American Astronomical Society's Annie Jump Cannon and George van Biesbroeck prizes. Prior to moving to Yale in 2001, Prof. Urry was a senior astronomer at the Space Telescope Science Institute, which runs the Hubble Space Telescope for NASA. Professor Urry is also known for her efforts to increase the number of women and minorities in science, for which she won the 2015 Edward A. Bouchet Leadership Award from Yale University and the 2010 Women in Space Science Award from the Adler Planetarium. She also writes regularly on science for CNN.com.

