

## **ASTRONOMERS DETECT SIGNAL FROM SPACE**

*Adler Astronomer Dr. Shane L. Larson is a Member of  
International Team That Made Historic Discovery*

CHICAGO, February 11, 2016 – The Universe is speaking and now we are listening! Adler Astronomer, Dr. Shane L. Larson, is a member of an international scientific team that was the first to definitively detect a gravitational wave: a ripple in the fabric of spacetime first predicted by Albert Einstein in 1916.

This “signal” from space was detected on September 14, 2015 by the Advanced Laser Interferometer Gravitational-Wave Observatory (LIGO) in the United States. The LIGO collaboration calls this event “GW150914.” It is the first direct observation of gravitational waves, a phenomenon predicted by Einstein 100 years ago, but unobserved until this momentous discovery. This is a way of seeing the Universe with gravity rather than light, which is a completely NEW way of understanding what is going on in the Universe around us.

In addition to gravitational waves, the detection of black holes is also significant. A black hole’s gravity is so strong, not even light can escape it. But black holes do radiate gravitational waves, which are produced by accelerating masses. These gravitational waves were detected when two black holes in orbit around each other, moving at half the speed of light, eventually collided and merged to form a new, bigger black hole. This new spinning black hole is 62 times more massive than the Sun.

“This is a new kind of astronomy -- observing the Universe using gravity itself,” said Larson; “We can’t see black holes with telescopes. This is the first time black holes have been directly detected by measuring them, through their gravity, as opposed to measuring the effect they have on something else in the Universe.” Larson has been involved with LIGO for five years and with the gravitational wave community for more than a decade.

Another prominent member of this team is Vicky Kalogera, who has been a member of the LIGO collaboration for more than 15 years. Kalogera is director of Northwestern University’s Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA). Regarding the discovery, Kalogera said, “Gravitational waves carry completely new information, about black holes and other celestial objects, and will unlock a new part of the Universe. These waves are very weak and challenging to detect here on Earth, but now we have detected our first burst of gravitational waves.”

The Adler is excited to bring this new discovery to life in a temporary exhibition opening today entitled, *LIGO Discovers Gravitational Waves*. In the Adler’s Clark Family Welcome Gallery, visitors will be able to watch a video explaining this direct observation in more detail while also enhancing their knowledge on LIGO. This will be open to the public until February 29<sup>th</sup>.

LIGO Scientific Collaboration assets: <https://mediaassets.caltech.edu/gwave>

Adler Planetarium assets: <https://www.youtube.com/watch?v=hGoVqalcST0>

Northwestern University assets:

<https://northwestern.box.com/s/1s49mv1tq89p6qh230mktj5u2oobm2u>

### **About the Adler Planetarium**

The Adler Planetarium—America’s First Planetarium—is more than a museum; it is a laboratory, a classroom, and a community exploring the Universe together. Each year, over 550,000 visitors experience the museum’s interactive exhibitions, live planetarium shows, hands-on, minds-on STEM education programs, and world-class collections. Founded in 1930 by Chicago business leader Max Adler, the Adler Planetarium is a recognized leader in public engagement. The museum’s scientists, historians, and educators inspire the next generation of explorers and invite you to explore space with us.