Discover the Physical Sciences highlights latest UCI math and astronomy research

The talks detailed work to solve long-unsolved math problems and to uncover the chemical composition of exoplanets.

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UCI Physical Sciences Communications



Alumni and community members alike gather for Discover the Physical Sciences at UCI Beall Applied Innovation.

Picture Credit:
Lucas Van Wyk Joel

On Thursday, Dec. 8, the UCI School of Physical Sciences brought back the Discover the Physical Sciences public lecture series. The event drew alumni and community members to campus to see presentations from two faculty members, Professor Steph Sallum of the UCI Department of Physics & Astronomy and Professor Jesse Wolfson of the UCI Department of Mathematics.

Wolfson delved into research he and his group are doing to solve a math problem posed back in 1900 by the mathematician David Hilbert, one that, if solved, could have impacts on not just mathematics, but fields like cryptography. To explore the problem, Wolfson studies the shapes that polynomial equations like Hilbert's make on a graph when you insert different values into the equation's variables.

"When nature hands me a polynomial," Wolfson said during his talk, "I want to solve it, and then I want to know that no one could have solved it more simply than I did."

Sallum presented on work to study the properties of planets far beyond our solar system using a new NSF-funded instrument she and her lab are in the process of building that, once installed on one of the two Keck Telescopes atop the Mauna Loa volcano in Hawaii, will help her to study the molecular composition of the atmospheres of distant gas giant planets like Jupiter.

"We can look at how bright these planets are with much finer detail in wavelength space than we could before," said Sallum of the new instrument.

The new data will help Sallum and her team detect molecules on planets like methane, ammonia, water vapor, carbon dioxide and carbon monoxide.

For Discover the Physical Sciences attendees like UCI alumnus Corwin Evans, the talks were a chance to experience a taste of the diversity of research happening at Physical Sciences.

"They presented complex things in an interesting way," said Evans, who attended the event with his wife and fellow UCI alumna, Nancy Evans.

Together, the Evans' are helping support the research of Professor Jonathan Feng of UCI Physics & Astronomy, which they learned about a few years ago during a talk that was also part of the Discover the Physical Sciences series.

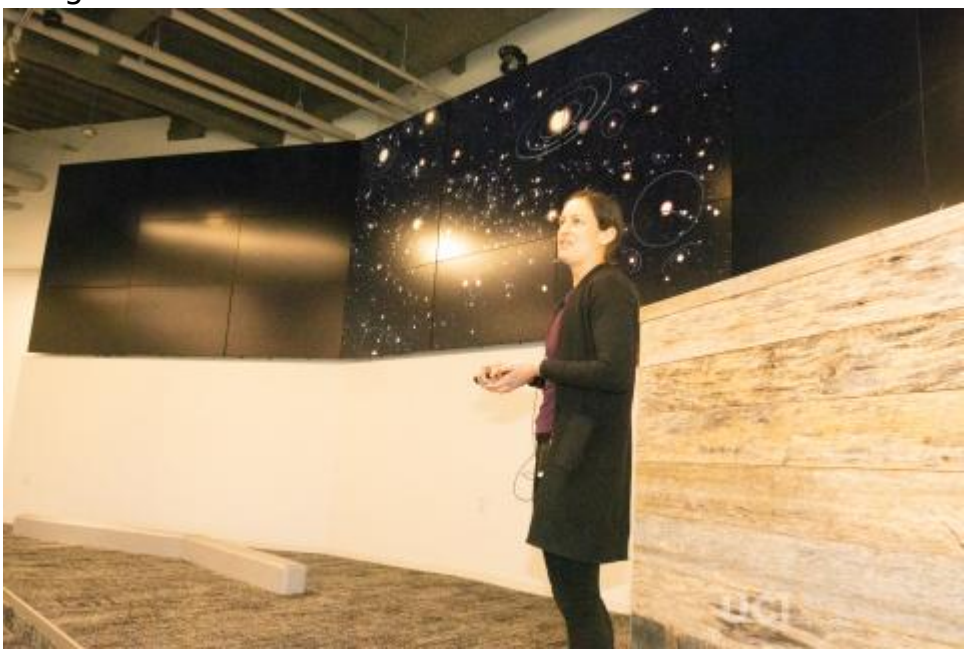
Discover the Physical Sciences will continue sometime in the spring. Learn more about other events happening at UCI Physical Sciences at ps.uci.edu/events. To watch a recording of the Dec. 8th talks click here.

Image



Professor Jesse Wolfson dives into his polynomial research and his group's work to solve a math problem no-one's been able to solve for over 100 years. *UCI Physical Sciences Communications*.

Image



Professor Steph Sallum describes how tricky it can be to spot planets orbiting other stars. "It's like trying to spot a firefly's glow next to a giant, blazing lighthouse," she said. *UCI Physical Sciences Communications*.

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