



2019 MT TAM ASTRONOMY PROGRAMS

Our 31st year on the Mountain

Presented by: Mt Tam Astronomy Program, San Francisco Amateur Astronomers, and Wonderfest

April 13 (7:30pm)

Exoplanets: The How, What & Why of Planets Around Other Stars

Dr. Megan Ansdell, Postdoctoral Fellow, Center for Integrative Planetary Sciences, UC Berkeley

In the last decade, the commissioning of new observatories (both on Earth and in space) and the development of new techniques for analyzing large datasets (including the application of deep learning) have allowed dramatic advancements in our understanding of extrasolar planets. This talk will explore how exoplanets are formed, what techniques allow their discovery, and why they have been fundamental to understanding our place in the Universe.

May 11 (8:00pm)

The Largest 3D Maps of Our Universe

Dr. Josh Dillon, Post-Doctoral Researcher, Astronomy Department, UC Berkeley

The last century has seen a revolution in our understanding of the cosmos, including its age—13.8 billion years—and content: 95% dark matter & dark energy; 5% normal matter! To test cosmology theories and to grasp how stars and galaxies formed, UC Berkeley collaborates world-wide to make huge 3D maps of hydrogen, the most abundant cosmic element.

June 8 (8:00pm)

Gravitational Lensing: Bends in Spacetime

Fatima Abdurrahman, Doctoral Candidate, Astronomy Department, UC Berkeley

100 years ago, Einstein predicted that light rays would deviate from straight-line paths in the space near massive objects. Today, we use this fact to weigh galaxies, discover planets of other stars, and “see” invisible black holes. How did this idea of *gravitational lensing* come about, and how do we use it today to probe all fields of astrophysics?

July 13 (8:00pm)

Cassini's Spectacular Final Year at Saturn

Dr. Matthew Tiscareno, Senior Research Scientist, SETI Institute

Cassini's 13-year exploration of Saturn stands as the most successful interplanetary mission in NASA history. Its "Grand Finale" (with dives off the outer ring edge, and between inner rings & cloud tops) culminated with a plunge into Saturn's depths. Insights earned during these maneuvers bring Saturn's complex glory into focus as never before.

August 10 (8:00pm)

Astrobiology Under Our Feet & Out to the Stars

Dr. Penelope Boston, Director, NASA Astrobiology Institute, NASA Ames Research Center

The Age of Astrobiology has begun. We have a whole Solar System—and a galaxy of star-warmed worlds beyond—to explore for life. How do we look for life here and way out there? How will we know it when we find it? Our exploration begins at Earth. We must apply what we are learning about our own amazing home planet to our search for life beyond.

September 7 (7:30pm)

MISSION: MARS

Dr. Pascal Lee, Planetary Scientist, Mars & SETI Institutes

We are making progress globally—from the Arctic to Antarctica, from underground labs to the International Space Station—to achieve the first human voyage to Mars. Come explore the what, why, how, when, and who of our first journey to the Red Planet.

September 21 (7:30pm)

SCI-FI MOVIE NIGHT: THE MARTIAN

2015 film starring Matt Damon depicts the struggles of an astronaut left behind on Mars as he awaits rescue. Post-screening discussion by Jeffrey Silverman of Science VS Cinema

October 5 (7:00PM)

Illuminating Dark Matter

Robert McGehee, Doctoral Candidate, Physics Department, UC Berkeley

Dark matter is the cosmic parent of all vast structures in the night sky, including our own Milky Way galaxy. Yet, we know so little about this mysterious stuff that constitutes over 80% of the material universe. This talk will illuminate our universe's elusive dark matter, highlighting the ingenious methods that scientists use to search for it.

For more information on the Astronomy Program, Directions, What to Bring and Parking Passes – Visit:

www.friendsofmonttam.org/astronomy.html

