

# CubeSat Astronomy Workshop

Friday April 26, 2019

California Polytechnic State University, San Luis Obispo, California

Chair: Charles Van Steenwyk / Co-Chair: Russell Genet

Sponsored by PlaneWave Instruments

In 1999, California Polytechnic State University (Cal Poly) and Stanford University proposed designing, building, and operating standardized miniature satellites they called *CubeSats* as an educational tool for teaching students about spacecraft hardware, electronics, programming, and operation. The basic 1U CubeSat is 10 cm on a side, while a 3U CubeSat is 10x10x30 cm. This standardization not only allowed multiple CubeSats to be deployed from spring-loaded boxes as excess cargo, but encouraged the development and manufacture of miniature power, communications, computer, and orientation modules that fit together in a CubeSat.

Originally, most CubeSats were designed by students and faculty, but commercially designed and operated CubeSats are now in the majority, such as the many downward-pointing 3U telescopes built and operated by PLANET, a Silicon Valley tech startup. It's not hard to envision many upward-pointing CubeSat telescopes designed, built, and utilized by students and faculty for astronomical research. A few have already been launched, and, as suggested by Arizona State University astronomer Evgenya Shkolnik by the title of her recent paper (attached), we are "On the verge of an astronomy CubeSat revolution."

Each year, for the past 15 years, Cal Poly has hosted the CubeSat Developer's Workshop, and this year (2019) it will be immediately followed, by a modest, one-day CubeSat Astronomy Workshop. All are welcome. You can register via the website of the Institute for Student Astronomical Research, [www.in4star.org/cubesat-astronomy](http://www.in4star.org/cubesat-astronomy). Alternatively, you can register at the Cal Poly CubeSat Developer's Workshop website, [www.cubesat.org/workshop-information](http://www.cubesat.org/workshop-information). Scroll down near the bottom.

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## Workshop Agenda

	<b>Thursday, April 25<sup>th</sup>, 2019</b>	
18:00	Pre-Workshop Dinner at Beda's Biergarten	(805) 439-2729 230 Broad St Ste 130, San Luis Obispo CA 93401
<b>Friday, April 26<sup>th</sup> -- ATL Keck Center Building 7, Room 2, California Polytechnic State University</b>		

09:00	Opening Remarks	Charles Van Steenwyk	California Polytechnic State University	
09:10	Introduction	Russell Genet		
09:30	CubeSats and SmallSats Astrophysics	Michael Garcia	NASA Science Mission Directorate	
10:15	Optical Communications for CubeSats	Tyler Ritz	University of Florida	
10:45	Break / Snacks			
11:00	Arcsecond Space Telescope Enabling Research in Astrophysics (ASTERIA)	Mary Knapp	MIT	
11:30	HaloSat X-Ray CubeSat	Daniel LaRocca	University of Iowa	
12:00	Lunch			
13:00	Colorado Ultraviolet Transit Experiment	Arika Egan	Colorado University	
13:30	Star-Planet Activity Research CubeSat	Tahina Ramiamanantsoa	Arizona State University	
14:00	Cal Poly CubeSat Capabilities	Amelia Greig	California Polytechnic State University	
14:30	Break / Snacks			
15:00	Introduction to USQ	Alejandro Levi	Univ. S. Queensland	
15:10	Model-Based Systems Engineering	Alejandro Levi	INOSE / SSWG	
15:30	Exploring the Future of CubeSat Astronomy	Charles Van Steenwyk	California Polytechnic State University	
15:45	Discussion/Workshop			
16:45	Closing Remarks	Charles Van Steenwyk	California Polytechnic State University	
18:00	Dinner at Beda's Biergarten	230 Broad St Ste 130, San Luis Obispo, CA 93401		
<b>09:00 Saturday, April 27</b> Breakfast at The Apple Farm 2015 Monterey St, San Luis Obispo CA 93401				