Prairie View Observatory- the Coming Pro-Am-Ed Experience(s)

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Lunar Meteors (What is new with ALPO-LMIS)

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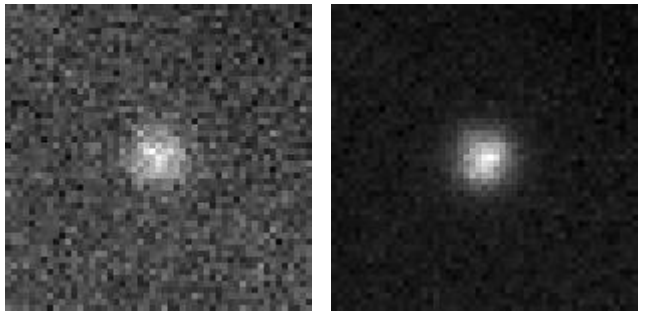
The Prairie View Observatory

Lunar (and Jovian) Meteors

- Campaign in December recorded five confirmed Geminid meteor impact events (that I am aware of). Tony Cook and BAA coordinated this effort along with ALPO-LMIS
- The ALPO Lunar Meteoritic Impact Search program continues to encourage the observation of the moon for lunar meteoroid impacts.
- One of the many goals I have for the Prairie View Observatory is to participate with ongoing programs monitoring the Moon and Jupiter for meteors
- Sauveur Pedranghelu recorded a meteor observed on Jupiter happened last year, on May 26, 2017, 21:24 CEST, 12 minutes after local sunset. This is the sixth known impact on Jupiter to date.

Image of an impact flash, confirmed
Taken by the research group
NELIOTA (https://neliota.astro.noa.gr)
Flash was observed with a 1.2-meter
Telescope and occurred on 14 Dec.
2017 at 4:35:09UT (peak brightness)

R-image I-image



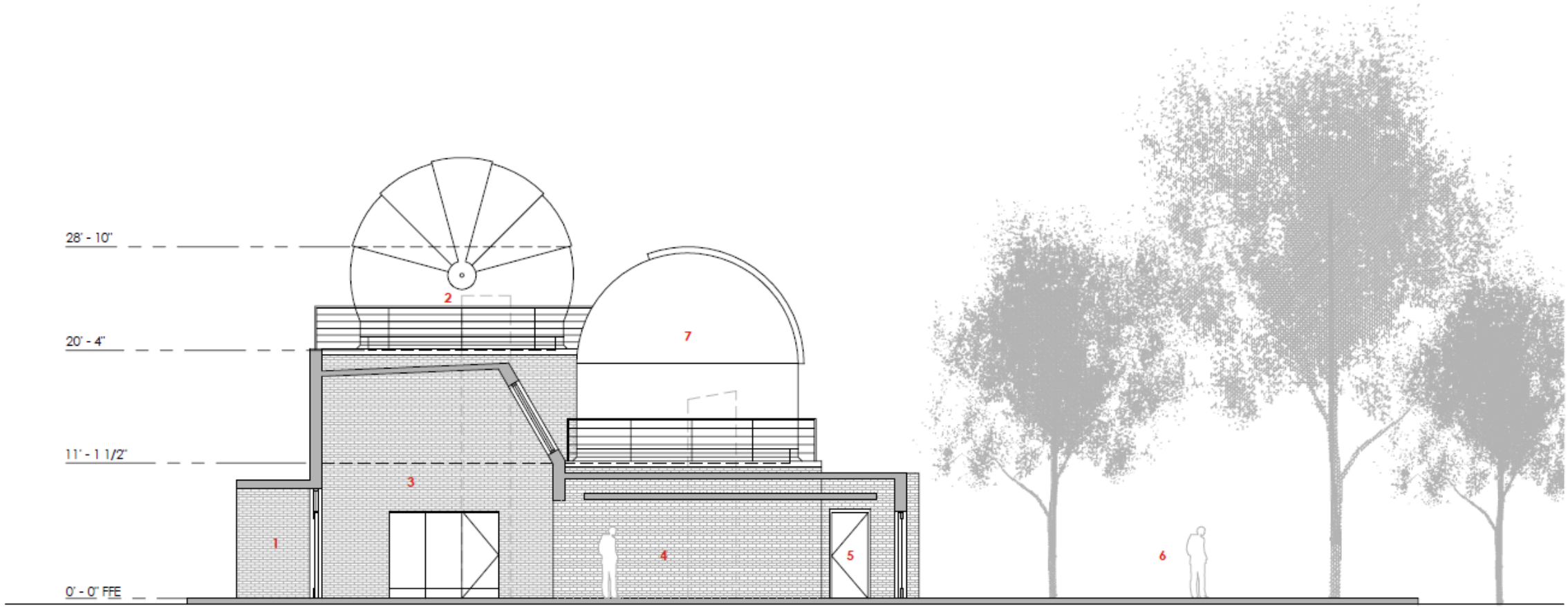
This flash was one of four documented by NELIOTA during the Geminids of 2017.

The Prairie View Solar Observatory

- Constructed in 1998 and operational for the subsequent15 years, this observatory primarily monitored active regions on the Sun
- The primary instrument is a 35-cm vacuum solar telescope with a smaller full-disk telescope (using the 770 nm K filter once used for Magneto-Optical Filter)
- Observations included solar flares, filaments and prominences, and the occasional planetary transit.
- The facility ran into disrepair earlier this decade but a grant from the Department of Education enabled refurbishment and upgrade of the facilities which were completed this year.
- A number of professional papers and conference posters were produced during the peak of PVSO's production

The Prairie View Observatory-Latest

- The plans for the PVO are moving forward as we speak as the facility is being fast-tracked and final modifications are happening in real-time
- Currently we plan to have a ground-level observing deck south of the existing Solar Observatory, one dome with one telescope (16-inch Meade, shown in the diagram, next page), and a second dome (Ash-dome) with a Planewave 1.0 meter (not shown)
- Another detail in the works is the addition of a planetarium in the location of the currently planned visitor's center (hence the high roof).
- Work is set to begin "soon" for a late December 2018 completion and first light in early-mid 2019.

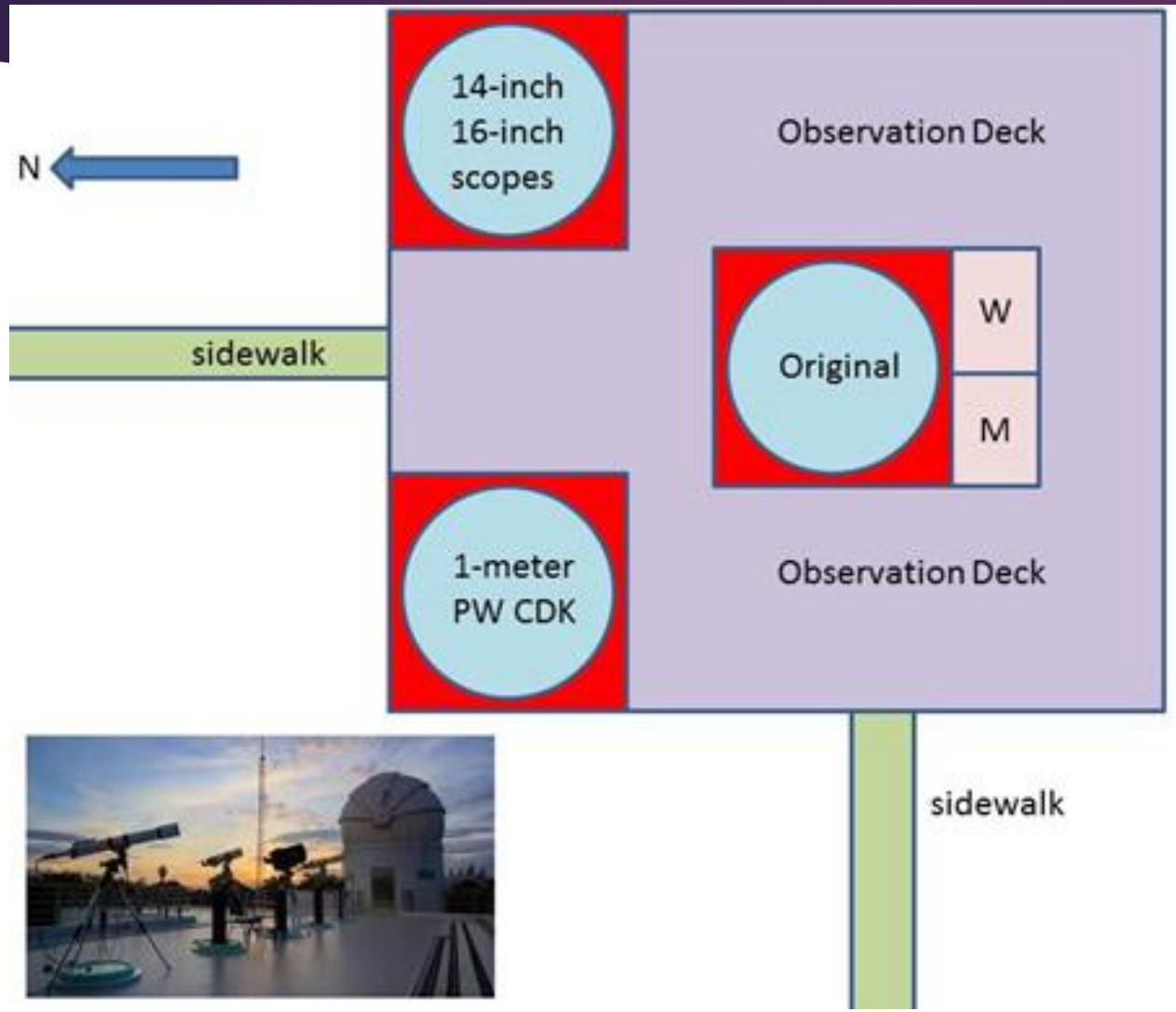


1 MAIN ENTRY
2 NEW OBSERVATORY BEYOND
3 VISITOR CENTER
4 CORRIDOR
5 WASHROOM EXPANSION
6 OBSERVATION DECK
7 EXISTING SOLAR OBSERVATORY BEYOND

SCHEMATIC SECTION - DRAFT

SCALE: 1/8" = 1'-0"

An Early Rendition of the Observatory



The Prairie View Observatory

- Design meetings are underway with actual groundbreaking expected within a month
- If all goes according to plan, the observatory construction, including domes, should be completed by the end of 2018
- The PW1000 scope would be installed by mid-2019
- First light will happen, for the 16-inch dome, sometime Spring 2019
- The Solar Observatory will be back online by then, resuming regular observations
- This project is funded by a grant from the Department of Education/Title III program
- Follow our progress at www.pvamu.edu/pvso

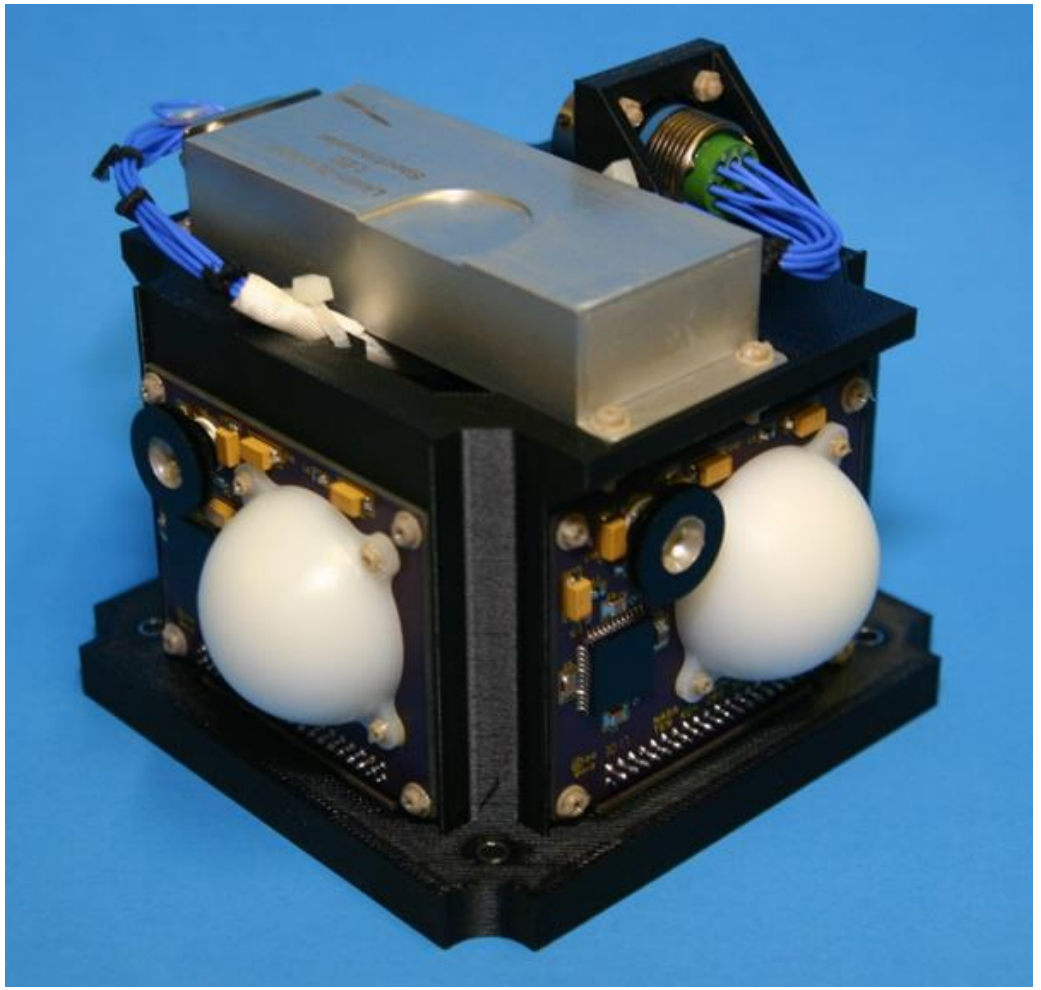
The Prairie View Observatory

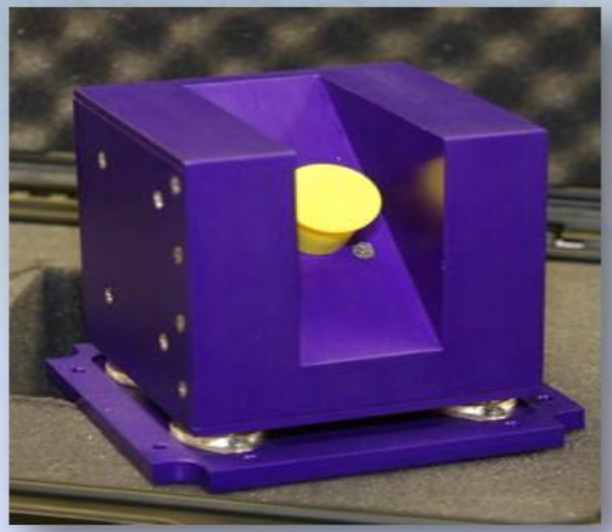
- Users of the Observatory will include:
  - University faculty and staff, along with their students
  - Classes for teaching laboratory activities and research projects
  - Individual scientists from within and without working on research
  - The public during open houses and viewing sessions
  - Area amateur astronomers through partnerships with area astronomy clubs
- The Observatory will promote collaborations between professionals, amateurs and education personnel in yet-to-be realized partnerships…hence the "pro-am-ed" experience

Possible Projects with PVO

- With the resources the observatory will be equipped with, there is the possibility of a wide variety of projects to include, but not limited to…
  - Jovian weather monitoring
  - Narrowband imaging of the giant planets
  - Solar Observations of active regions, flares, prominences, and filaments
  - Narrow-band imaging of HII regions, planetary nebulae, and supernova remnants (to build up a catalog of narrow band images of such objects)
  - Deep images of active HII regions with narrow band filters
  - Asteroid and planetary occultations
- Also a receiving station for Ten Koh CPD will be stationed at PVO

A New Micro-Satellite: Ten Koh CPD (Charged Particle Detector)





First Prairie View A&M University Payload Launched into Space on December 3, 2014

Sponsored by the Chancellor's Research Initiative

Dr. John Sharp, Chancellor , Texas A&M University System

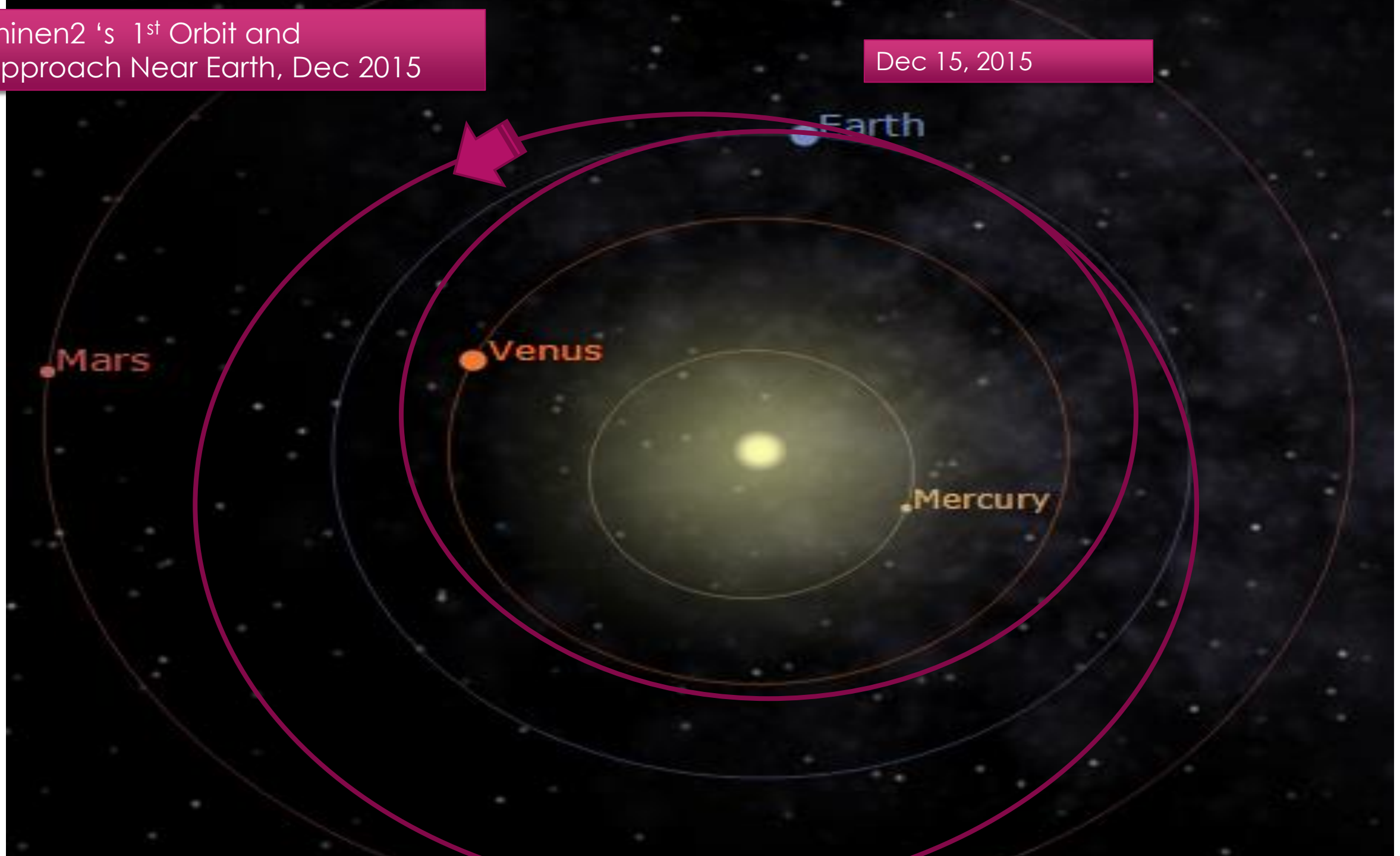
Radiation Institute for Science and Engineering (RaISE)

Dr. P. B. Saganti, Principal Investigator and Research Director
Dr. F. A. Cucinotta, Chief Scientist and Executive Professor

PRAIRIE VIEW A&M UNIVERSITY

Shinen2 Spacecraft of Kyushu Institute of Technology was launched with Prairie View A&M University's First Payload to Deep-Space as part of Hayabusa2 (Asteroid Explorer Mission of JAXA) on 3rd December 2014 from Japan.

Shinen2 's 1st Orbit and Approach Near Earth, Dec 2015



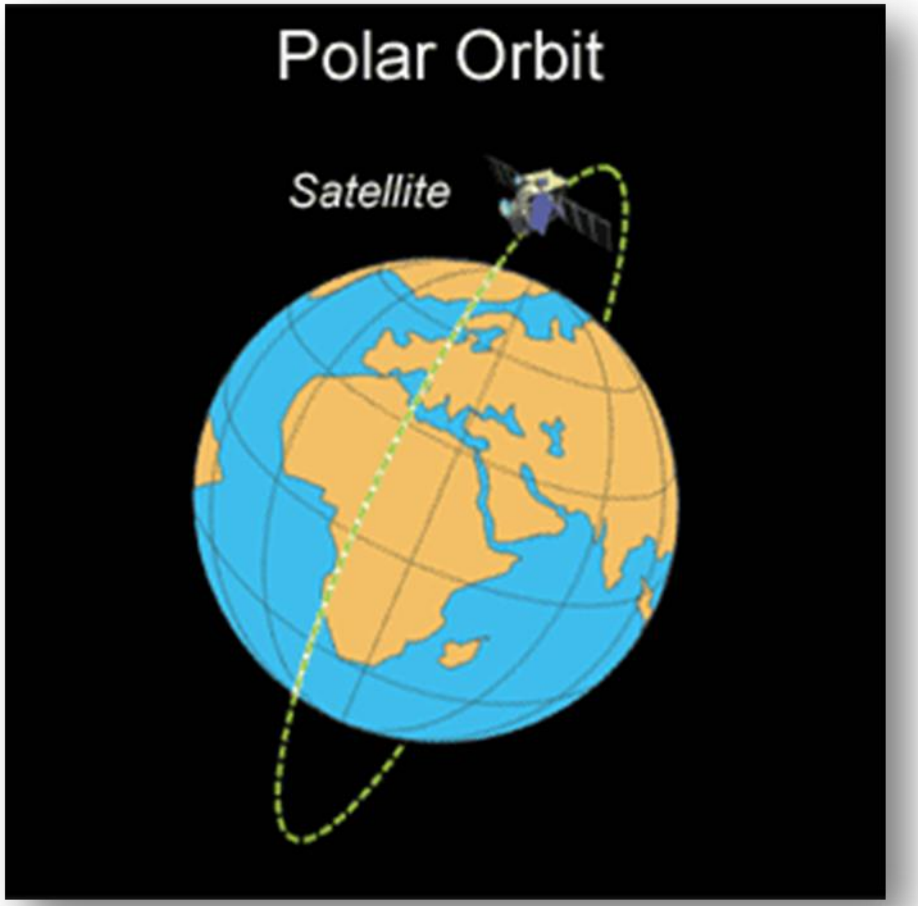
The Robert C. Byrd Green Bank Telescope (GBT) is the world's largest fully steerable radio telescope.

National Radio Astronomy Observatory (NRAO) site at Green Bank, West Virginia.

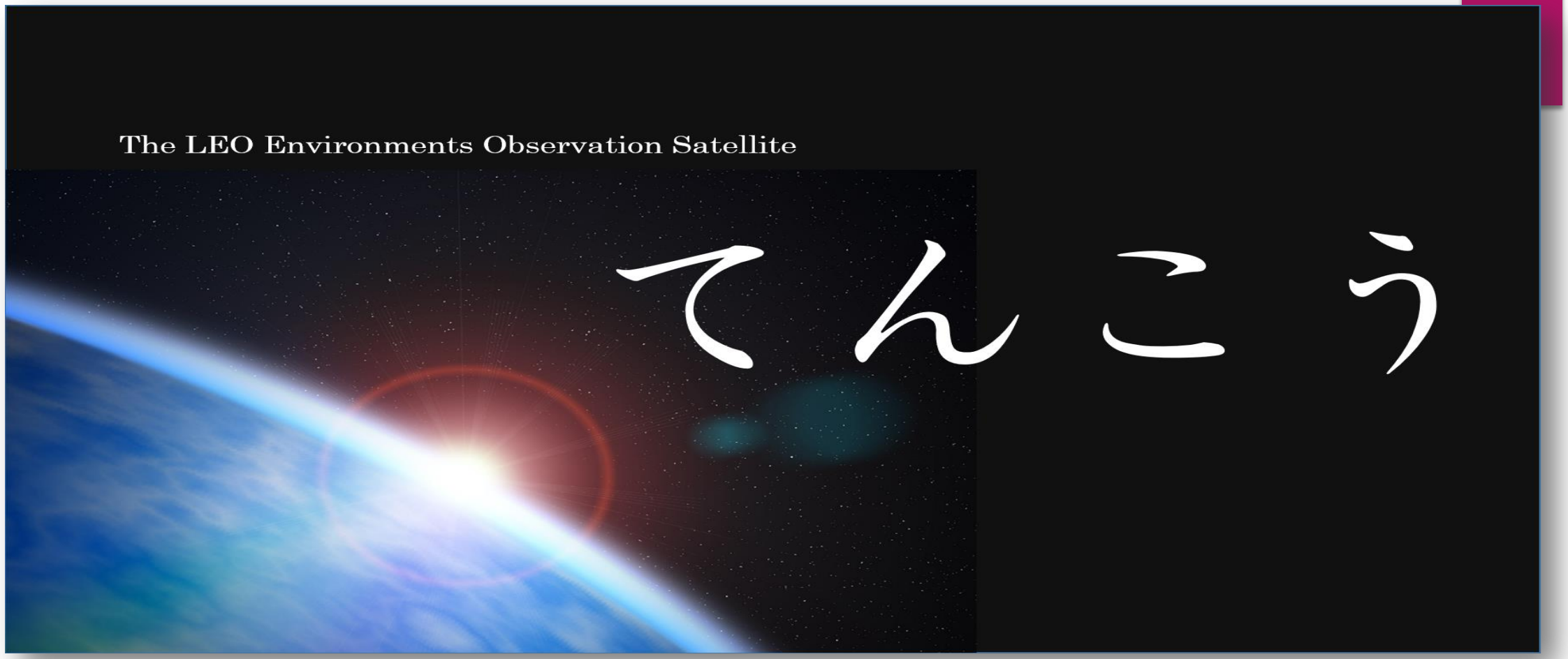
December 3-6, 2015: NRAO GBT Team helped to collect data from Shinen2 (payload – PPD) for PVAMU.

A New Radiation Payload for a Japanese Satellite – Ten-Koh to Polar Orbit – August 2018

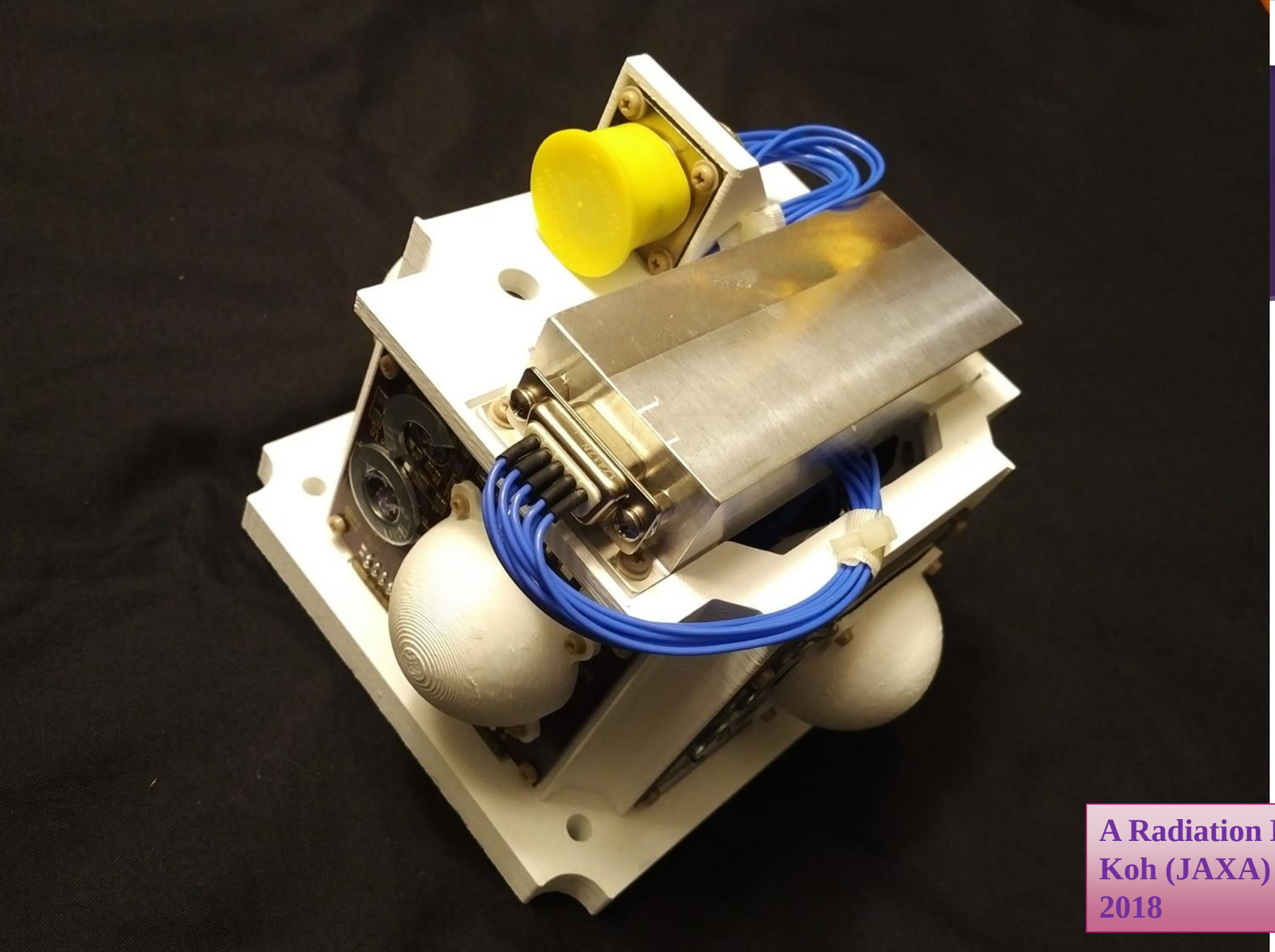
Ten-Koh Satellite will be launched into Low Earth Polar Orbit ~ 600 km and 93^0 with PVAMU payload as a primary radiation science investigation with two way communications.



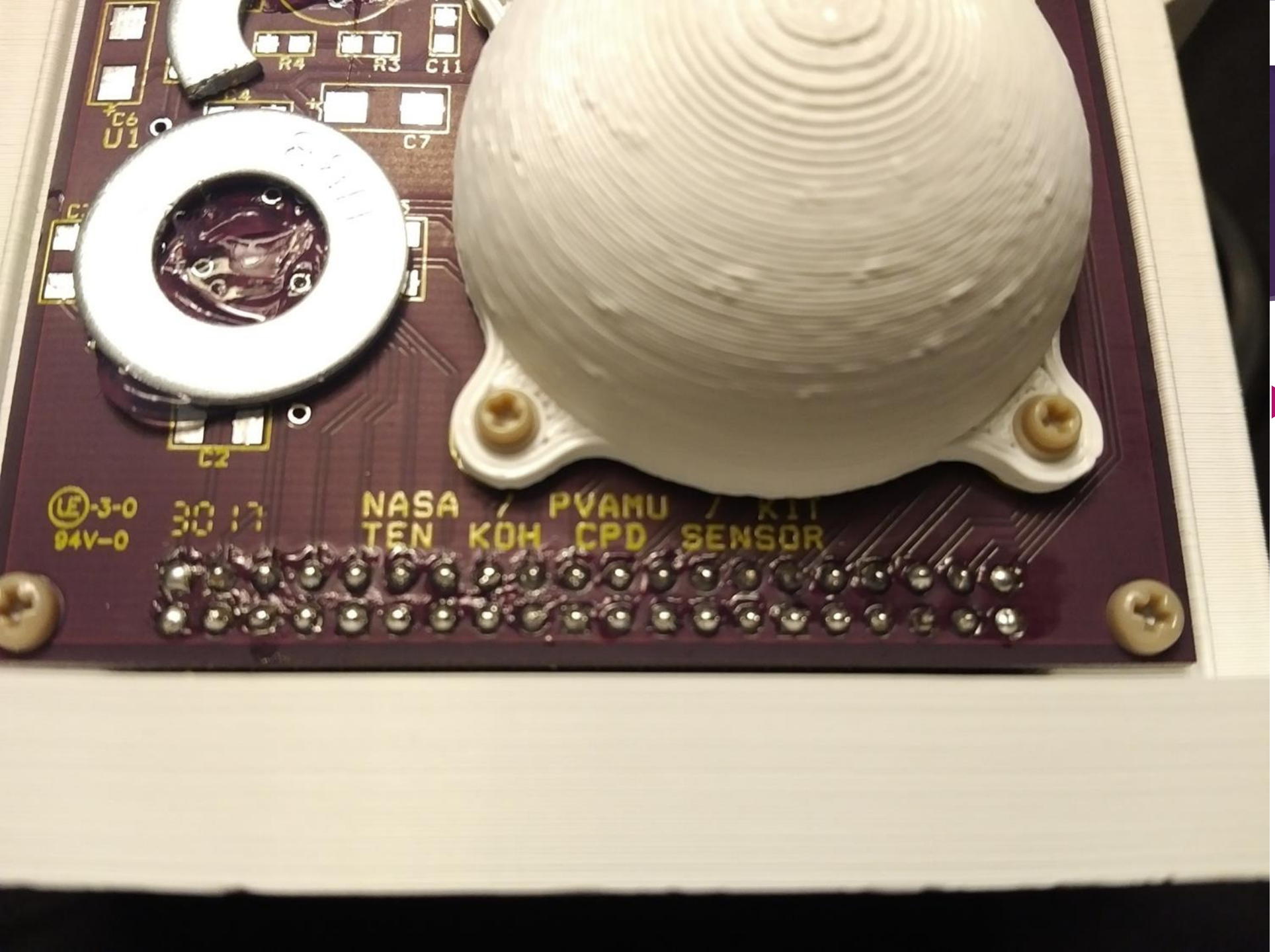
RaISE
RADIATION INSTITUTE FOR SCIENCE & ENGINEERING



Ten-Koh Spacecraft Team –
Dr. Okuyama (KIT-Japan) and Dr. Saganti (PVAMU-USA)



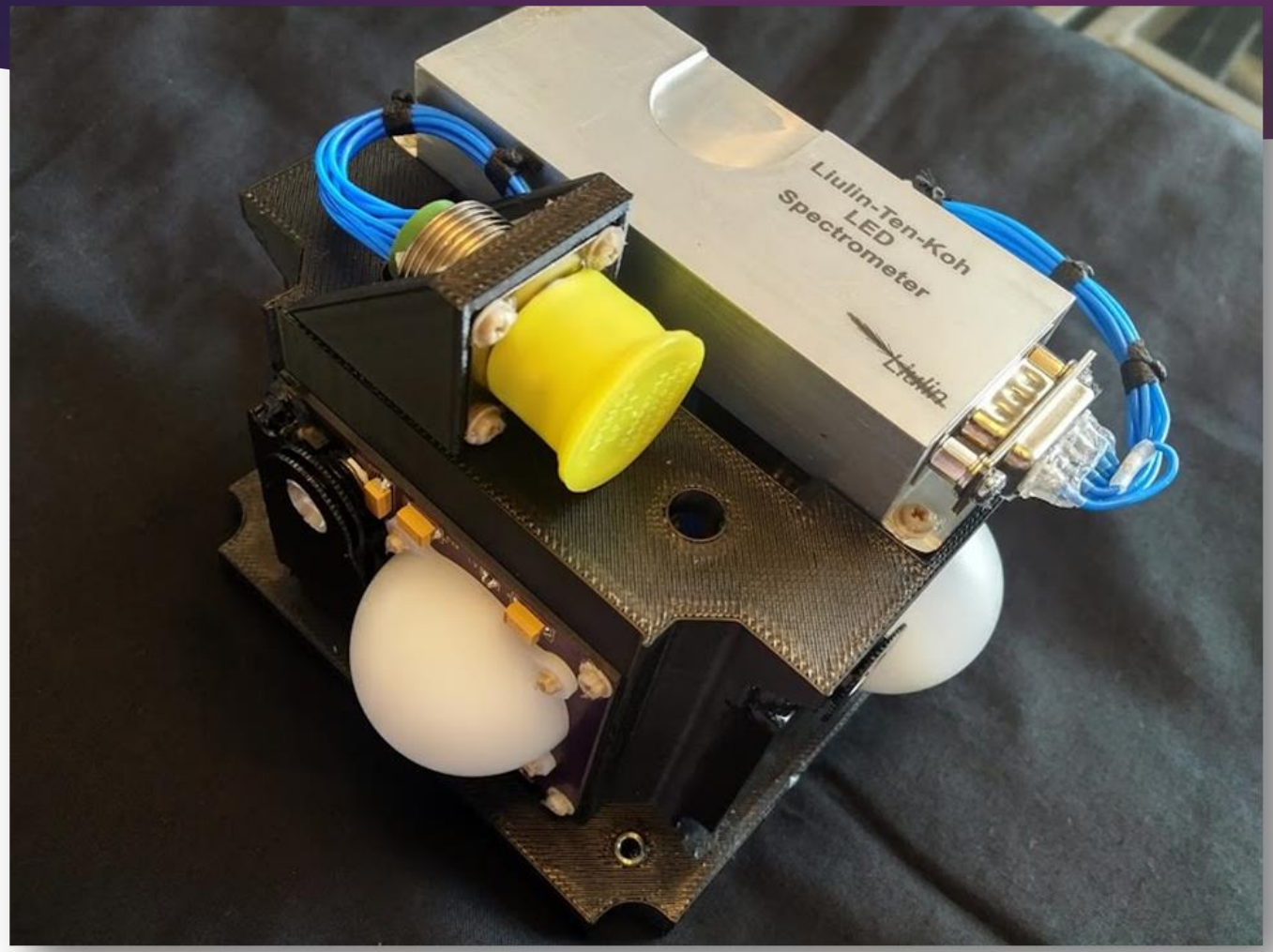
A Radiation Detector Payload for Ten-Koh (JAXA) to Polar Orbit: August 2018



- Close up of the lower left face of the spacecraft shown on the previous image.

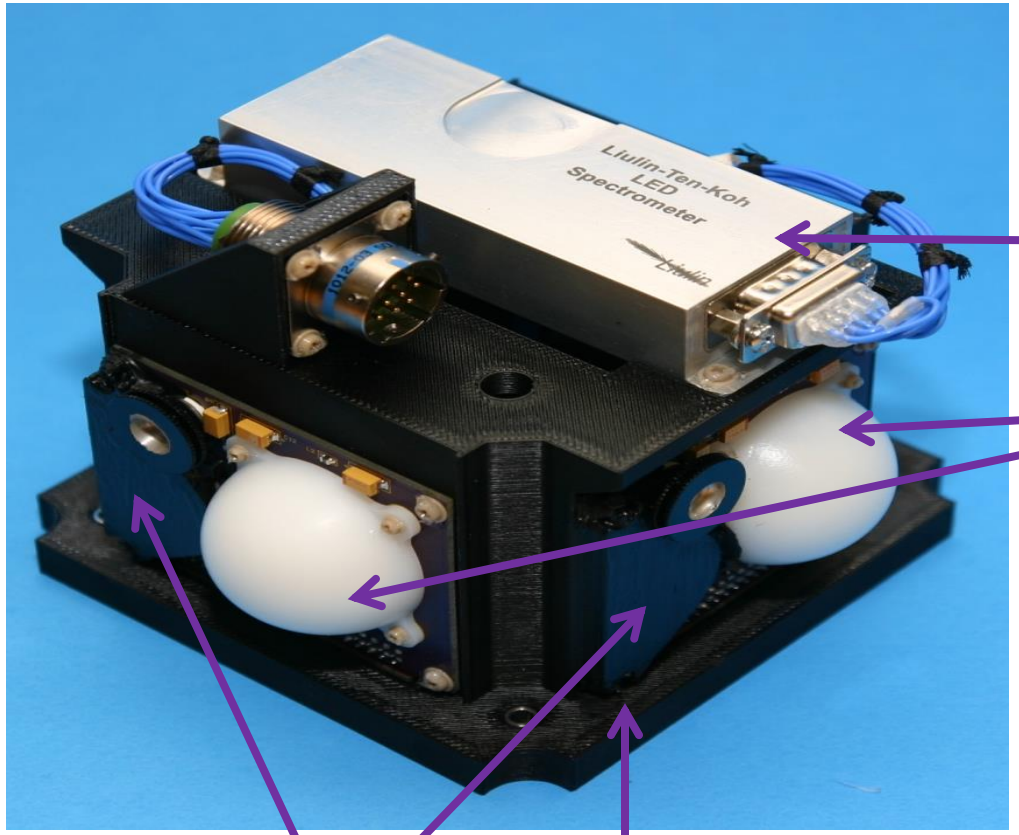
Radiation Payload (CPD) for Ten-koh

Dr Saganti (PVAMU) PI and Lead, with Mr Holland (NASA-JSC), Dr DaCHEV (Bulgaria), and Dr Cucinotta (UNLV) for Dr Okuyama (KIT-Japan) and the Ten-Koh Team.



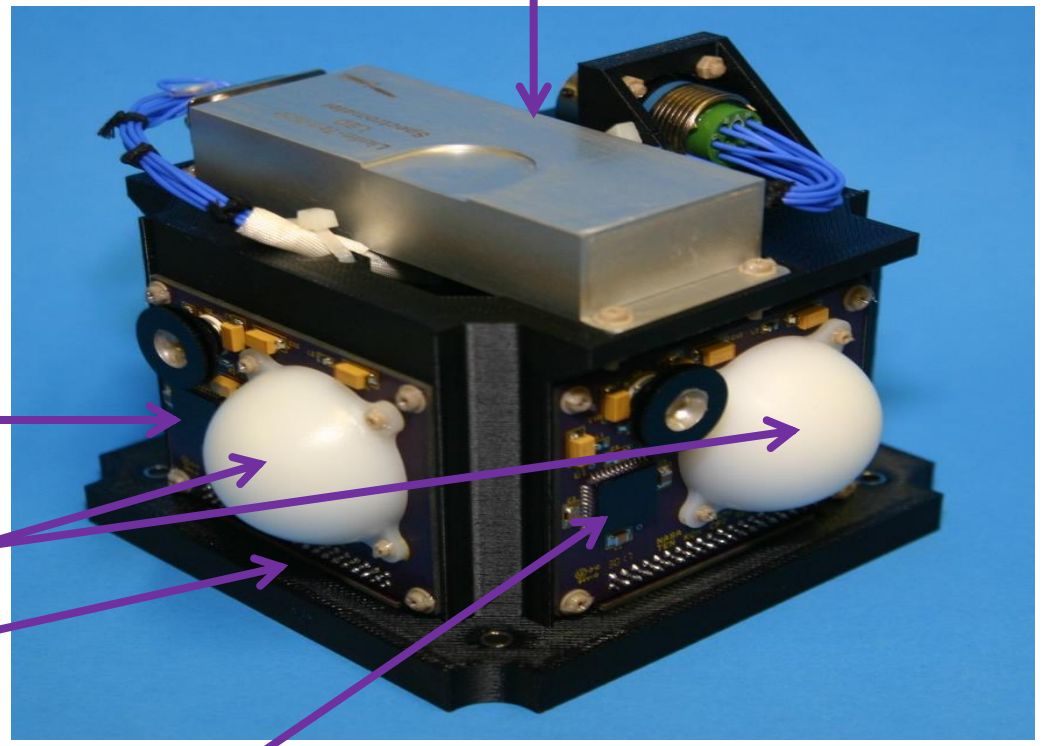
***Launch now planned for September or October 2018**
***The satellite will transmit signal at 437.5 MHz (may be slightly different when it is actually launched…)**
***Sign up for updates if you want to "listen in"…**

CPD for Ten-Koh
Charge Particle Detector (CPD)



Liulin Unit

Polystyrene



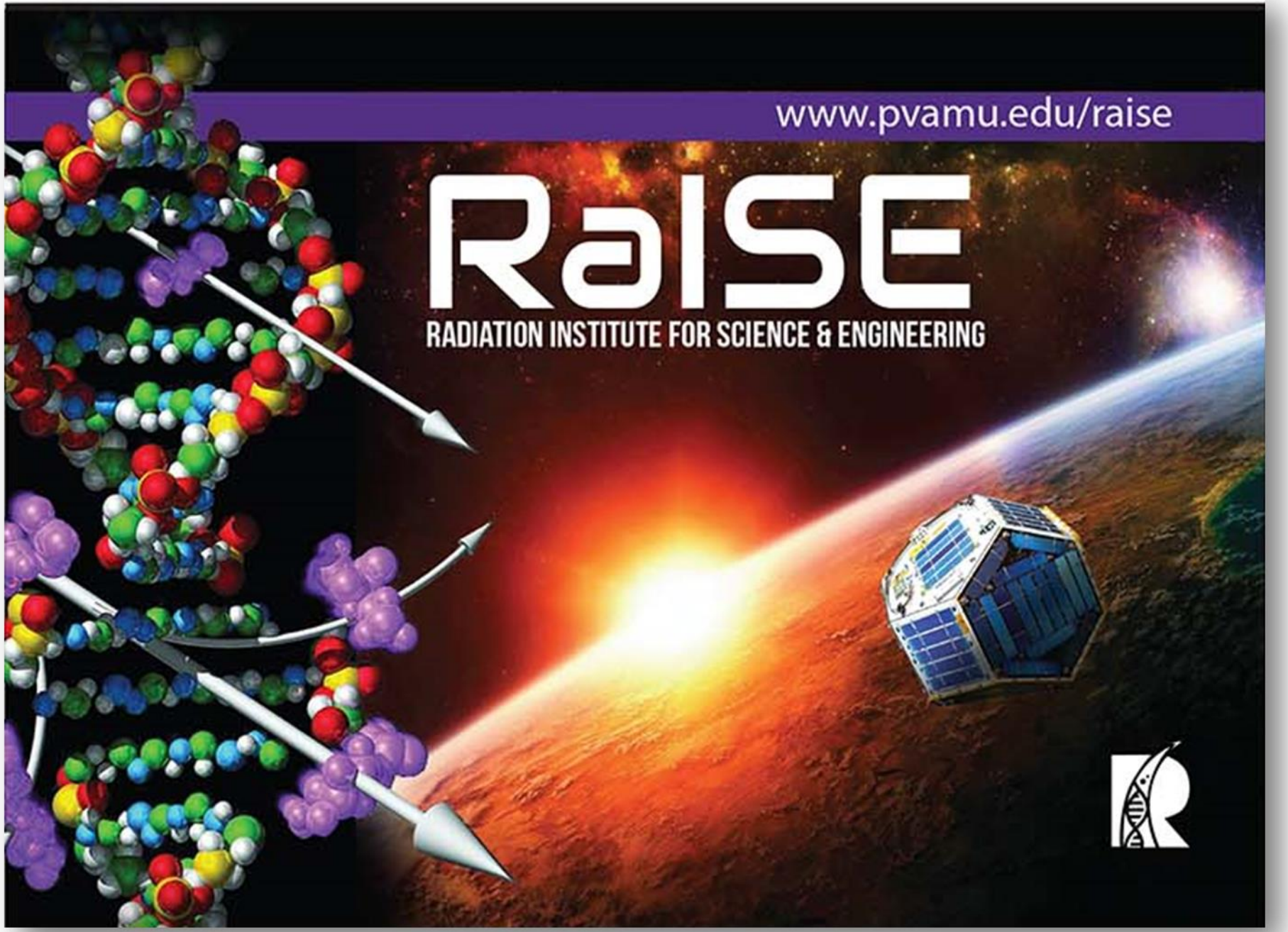
X-Ray Detectors

Open Sensor

Polyethylene

3D Printed Structure

Open Sensor



Thank you very much for your attention!

Questions?