

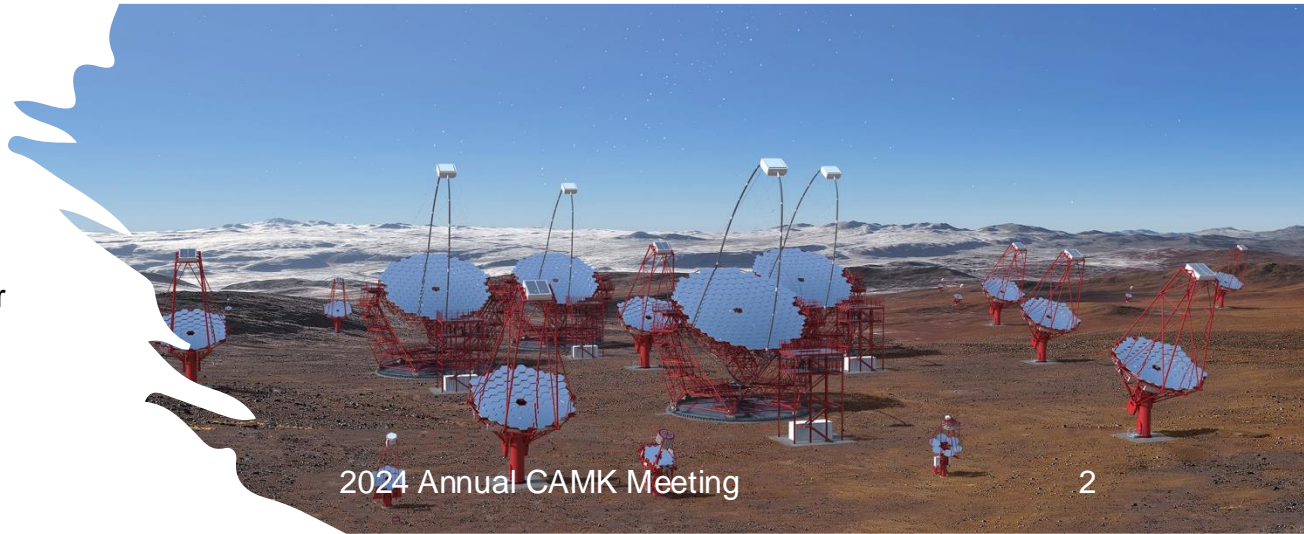
# **Cherenkov Telescope Array**

CAMK Annual Meeting 2024

***Rafał Moderski***

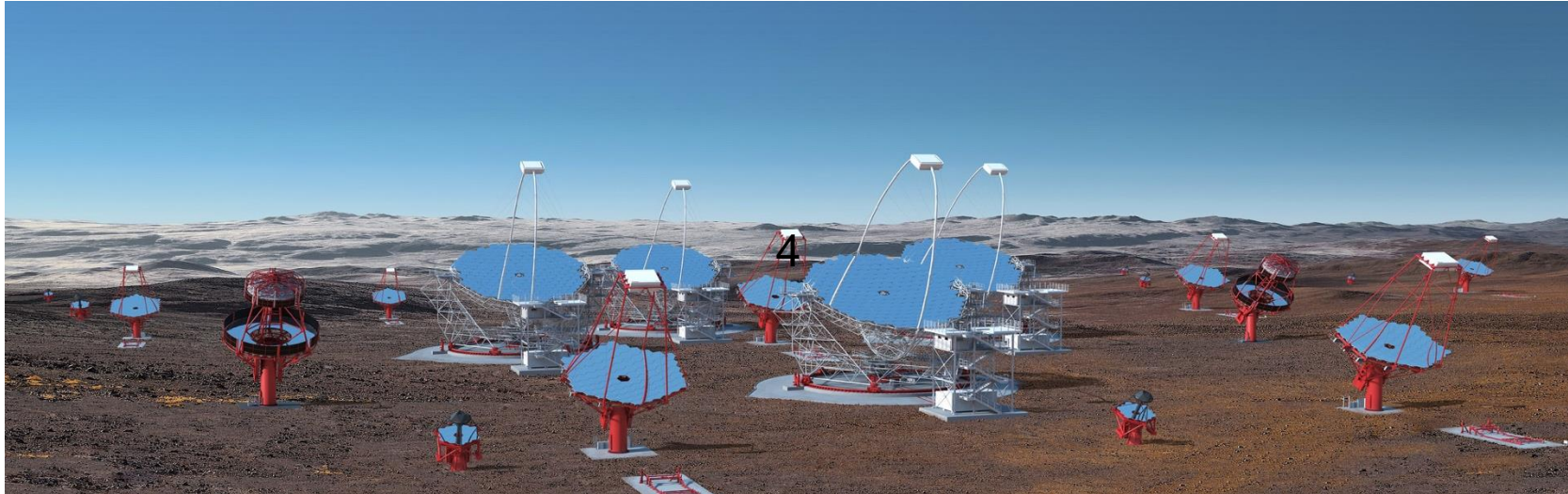
# Cherenkov Telescope Array OVERVIEW

- next generation **astronomical observatory** of the very high energy **gamma-rays** (20 GeV – 300 TeV)
- **two sites**: Southern site in Chile, Northern site on La Palma Island – **118 telescopes**  
**1<sup>st</sup> stage ( $\alpha$ ) reduced to 51 + 13**
- **THE LARGEST OBSERVATORY ON THE EARTH** (include ALMA has only 66 antennas)
- science topics include: understanding of the origin of cosmic particles; probing extreme environments: cosmic explosions, black holes, etc.; exploring frontiers of physics: searching for dark matter and deviations from the theory of relativity



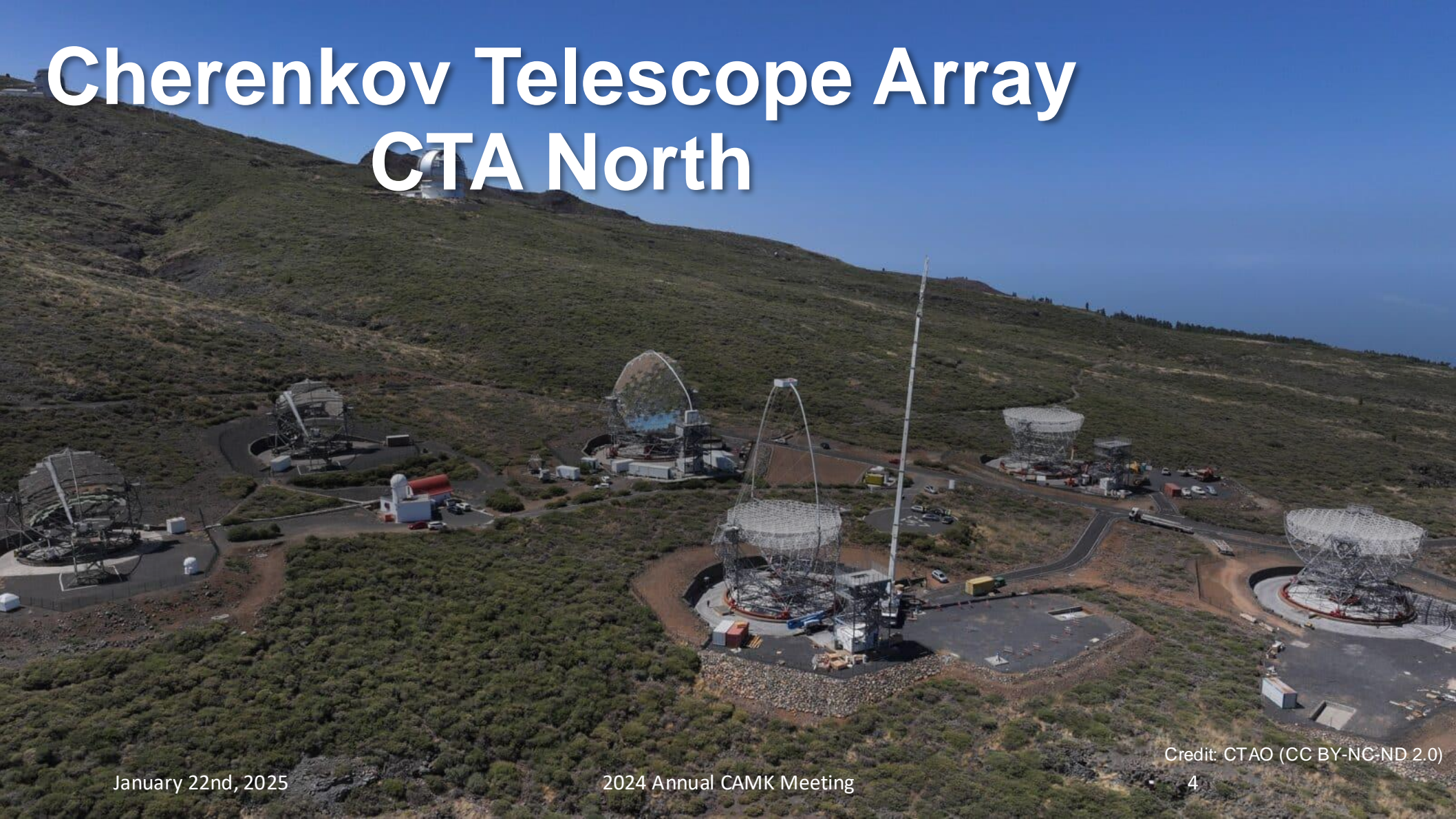
# Cherenkov Telescope Array ORGANIZATION

- CTAO Consortium established in 2008 – about 1500 members from 25 countries
- On the ESFRI Roadmap since 2008 (promoted to “landmark” in 2018; ASTRONET Roadmap 2022-2035; Polish Roadmap since 2020
- **CTAO (Cherenkov Telescope Array Observatory) ERIC (European Research Infrastructure Consortium)**  
**established by EC on January 7, 2025**
  - 9 founding members (including Poland)





# Cherenkov Telescope Array CTA North



January 22nd, 2025

2024 Annual CAMK Meeting

Credit: CTAO (CC BY-NC-ND 2.0)



# Cherenkov Telescope Array CTA South

Vulcano Llullaillaco  
6739 m, 190 km east

Cerro Armazones  
E-ELT

Cerro Paranal  
Very Large Telescope

Cherenkov Telescope Array Site





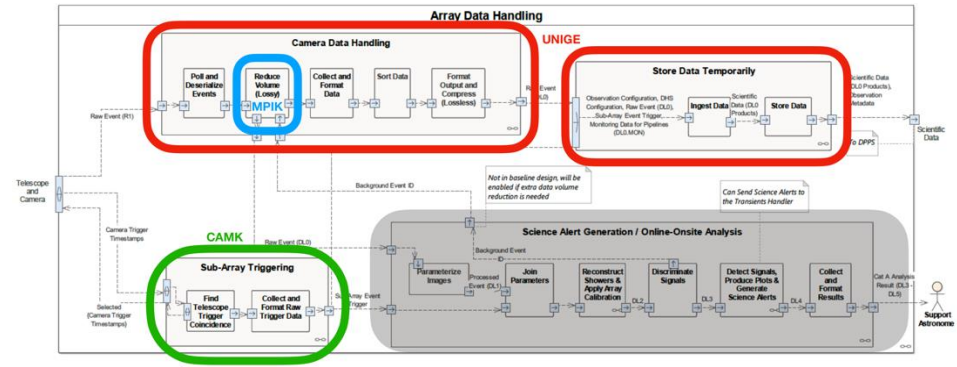
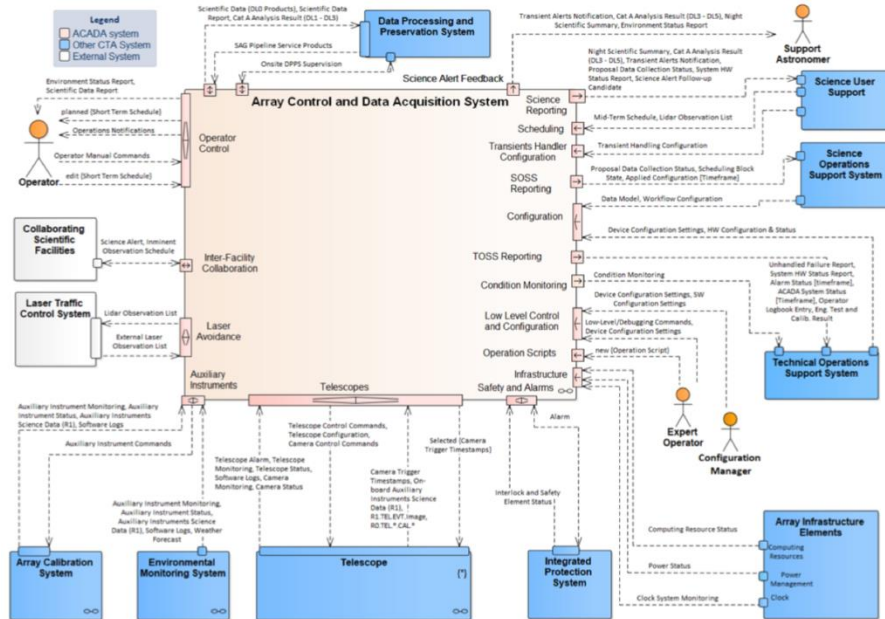
# Cherenkov Telescope Array $\alpha$ SOUTH

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# Cherenkov Telescope Array ACADA

- ACADA (Array Control and Data Acquisition) is the central software responsible for controlling the operation of CTA telescopes. CAMK team is responsible for **SWAT (SoftWare Array Trigger)** – central array trigger originally developed by Jurek Borkowski
- Current CAMK Team consists of Bronek Rudak (coordinator), Jurek Borkowski, Adam Muraczewski, and Rafał Moderski



# Cherenkov Telescope Array ACADA



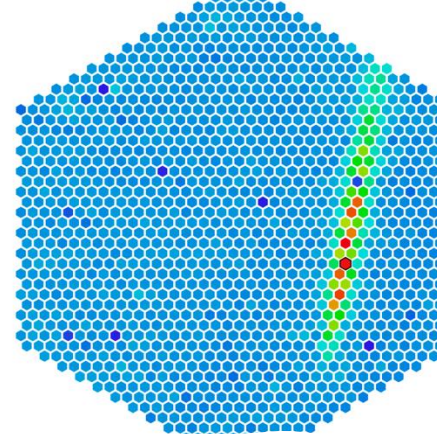
- On September 23, the [CTAO ACADA Collaboration](#) achieved yet another milestone when the [CTAO Central Organisation](#) officially approved and closed out the Critical Design Review (CDR) of the Array Control and Data Acquisition (ACADA) system.



# Small-Size Single-Mirror Telescope SST-1M

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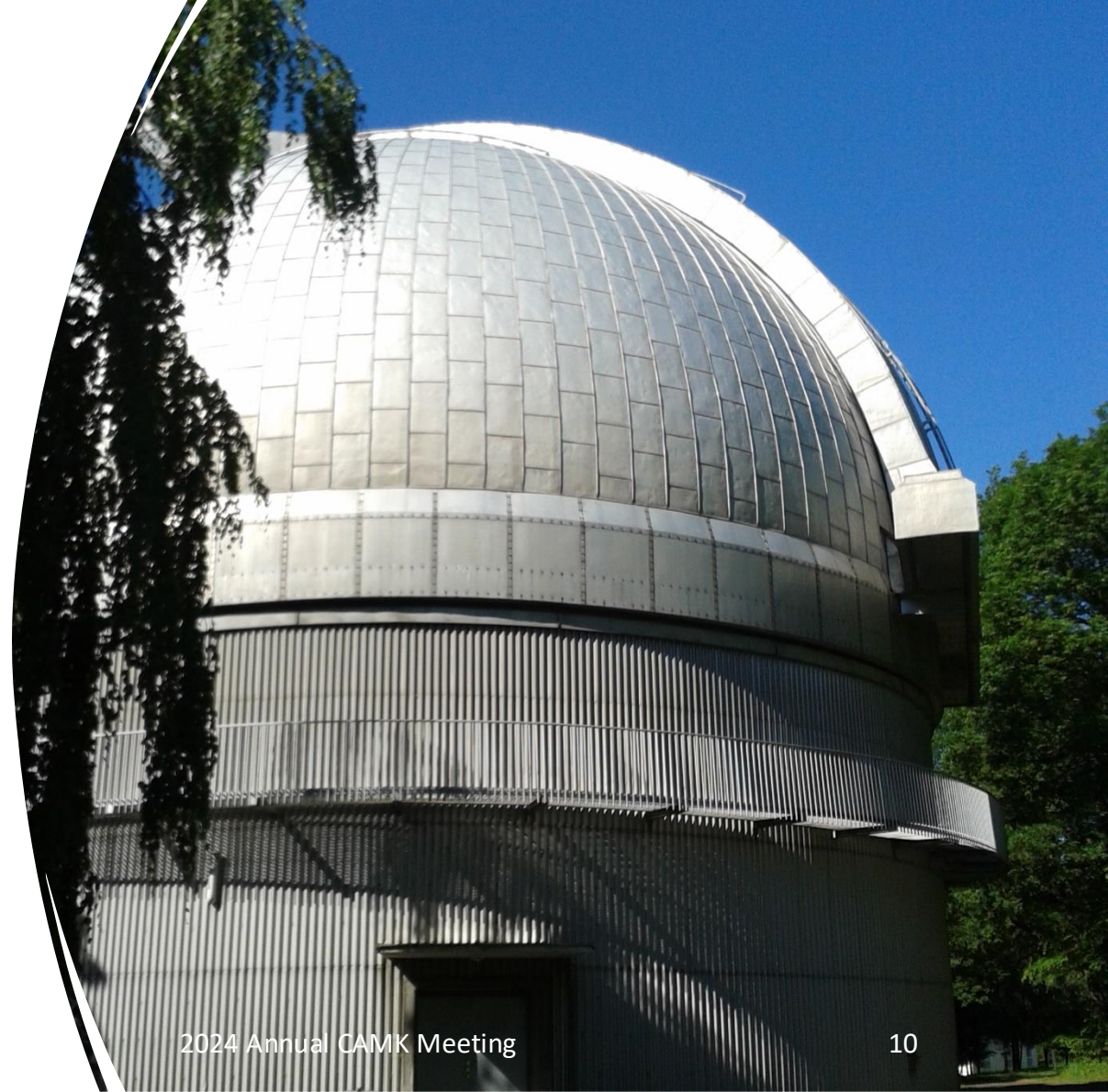
- – supposed to be the main contribution of Poland to CTA – SST-1M but in 2019 the CTA Council decided that **“the CTA-SST design should be based on the ASTRI/CHEC design”**
- – fully working prototype constructed at IFJ PAN, Kraków, funds received to complete the **array of 2 telescopes**



# SST-1M at Ondrejov Observatory

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- Located 40 km south-east of Prague is the principal astronomical observatory of the Astronomical Institute (Astronomický ústav) of the Academy of Sciences of the Czech Republic. A 2-meter telescope, which is the largest in the Czech Republic is located there.
- Two SST-1M mini array has been constructed at the Ondrejov Observatory





# SST-1M at Ondrejov Observatory



**SST-1M**

Single-Mirror  
Small Size Telescope



# SST-1M at Ondrejov Observatory

