



# **The Pan-African Citizen Science e-Laboratory Project**

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Presented by Mrs. Joy Olayiwola, NASRDA

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Botswana International University of Science & Technology, March 22-27, 2026

# **About PACS e-Lab**

**The Pan-African Citizen Science e-Laboratory (PACS e-Lab) is a nonprofit organization dedicated to advancing STEM education across Africa through hands-on activities in astronomy and space science.**

**Founded Dec 2020**

**Motto/Slogan - Bringing the stars to your doorsteps**

**Fostering through Partnerships and Digital Technology**

# Our Objectives

To disseminate hands-on space and astronomy projects that empower the African public to actively contribute to astronomy, space research, exploration, and scientific discovery.

To provide the African public, including students, educators, and STEM enthusiasts, with comprehensive training and accessible educational resources, enabling meaningful and effective participation in astronomy and space science initiatives.

To foster strong, sustainable collaborations with national space agencies, industry partners, academic institutions, and science organizations across Africa to promote and integrate these hands-on projects into local and national science engagement strategies.

To serve as a trusted intermediary, facilitating equitable and impactful hands-on collaborations in astronomy and space science between Africa and developed countries, ensuring mutual benefit and long-term partnerships.

# Target Audience

We serve over 100 groups and tens of thousands of learners across Africa, including:

**Educational Institutions:** Secondary schools, universities, and research institutes, including students and educators.

**Space Agencies:** National space agencies, observatories, space science professionals, and astronomers.

**Nonprofit Organizations and Clubs:** Astronomy societies, STEM enthusiast groups, STEM clubs, and science-focused NGOs.

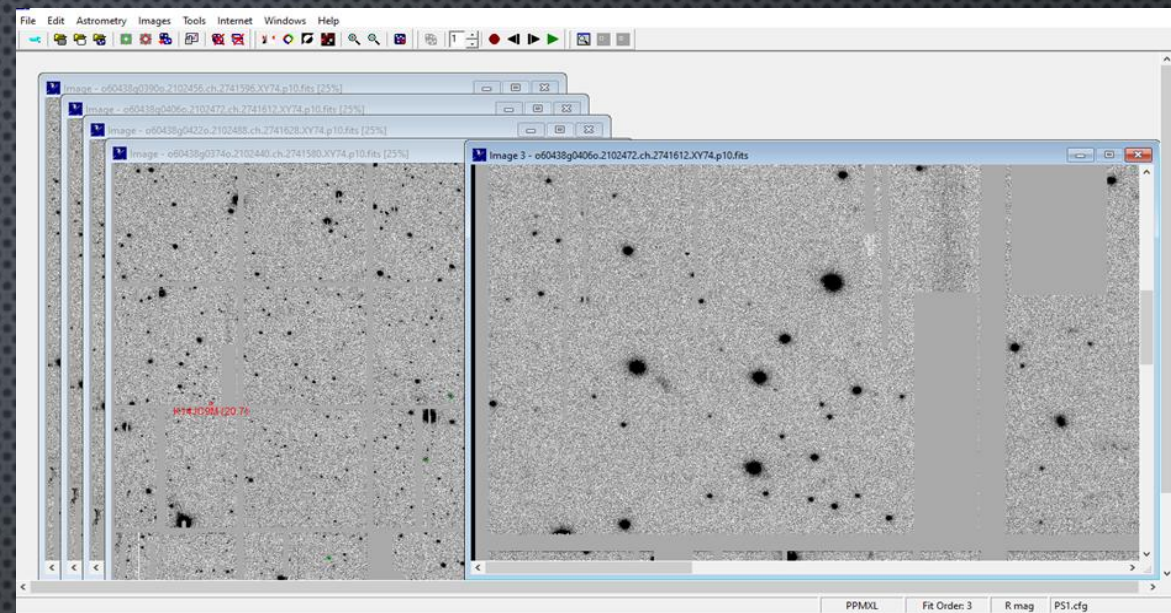
# Requirements

All PACS e-Lab projects are suitable for all individuals regardless of age, religion, country, academic or professional affiliation, levels, etc.

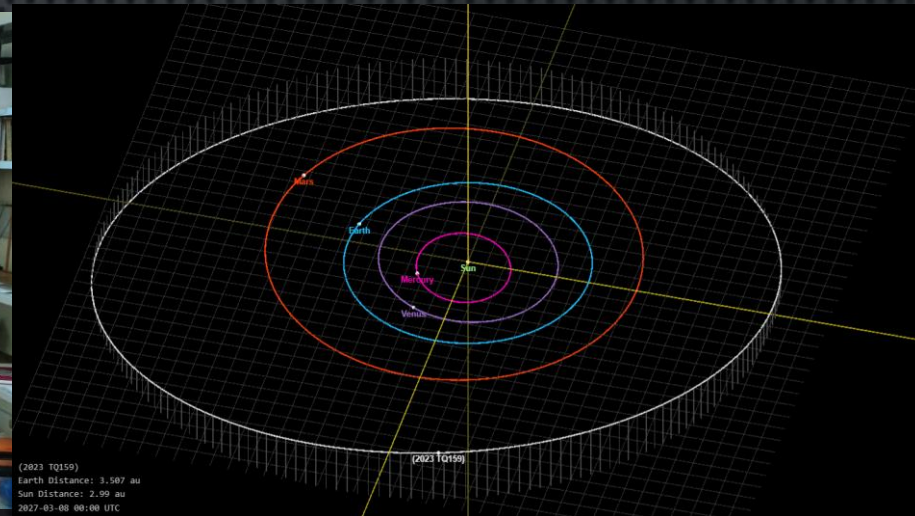
Basic computer operation knowledge (Windows OS), Internet, and a Passion for Space.

# Citizen Science: Asteroid Hunting

- Objective: Analyze astronomical data with Astrometrica, discover new asteroids and contribute to planetary defense.
- Collaboration: International Astronomical Search Collaboration (IASC), etc.



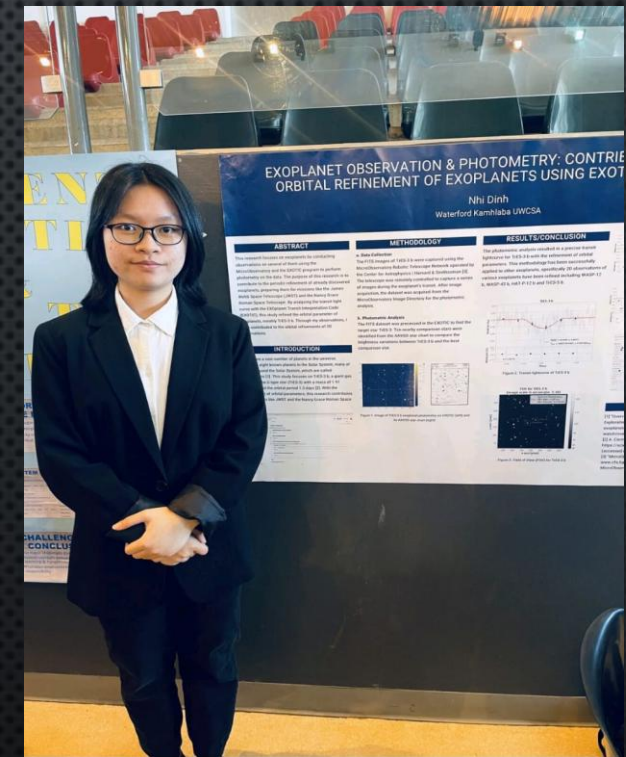
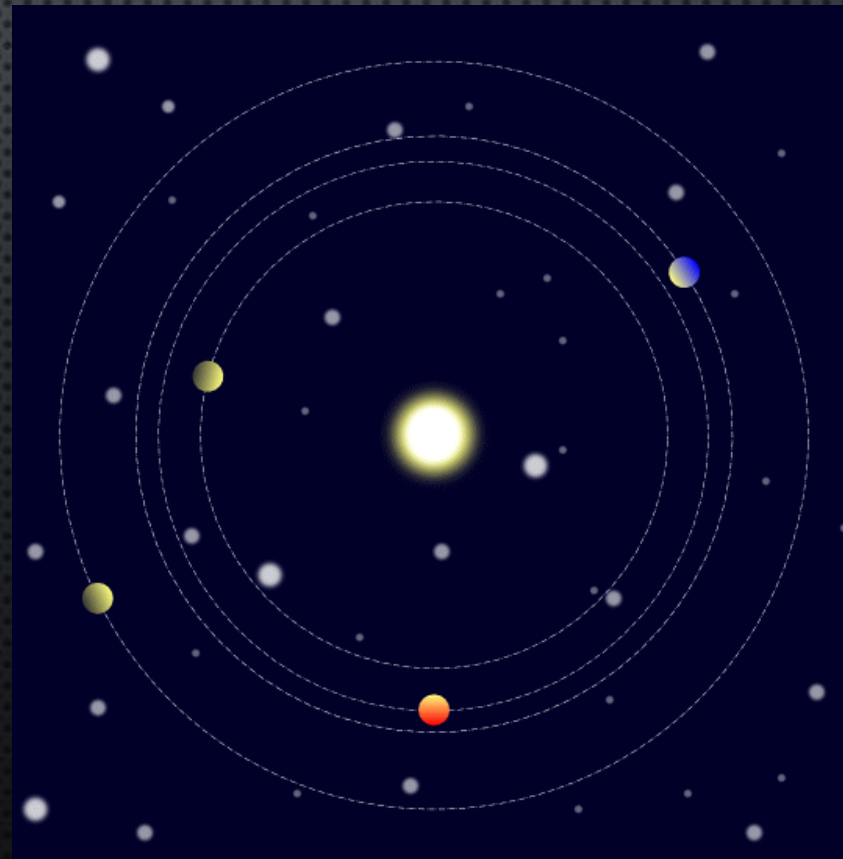
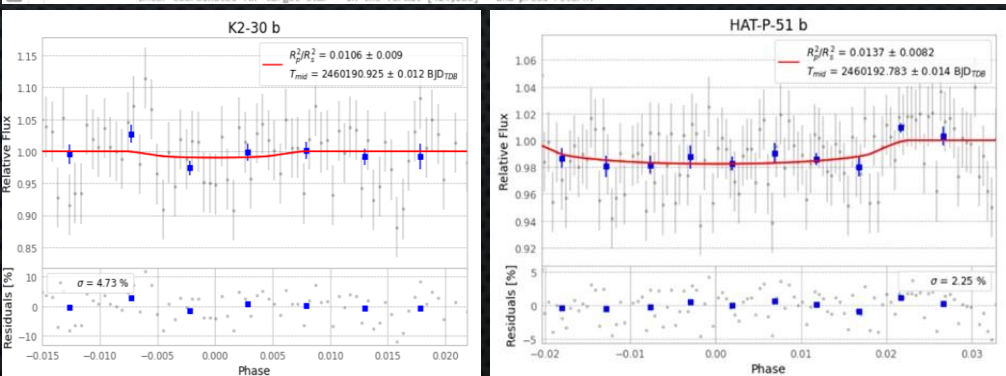
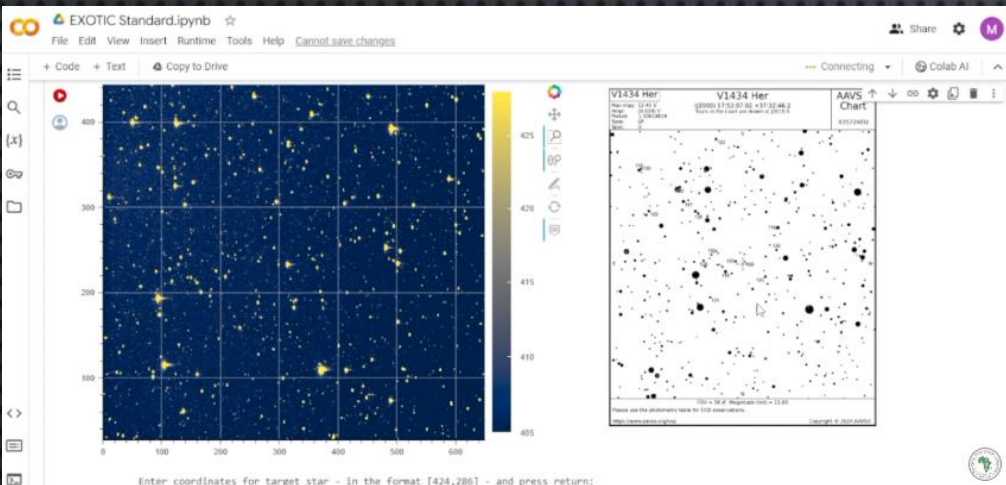
Data analysis using Astrometrica and preparing MPC report



Left: Mr. Stéphane Ahoua, a science instructor in Côte d'Ivoire, using asteroid hunting in teaching. Center: Nunes Alfredo Assamo with certified students. Right: top-down orbit of asteroid 2023 TQ159 discovered by Harold Safary, Kenya Space Agency.

# Citizen Science: Exophotometry

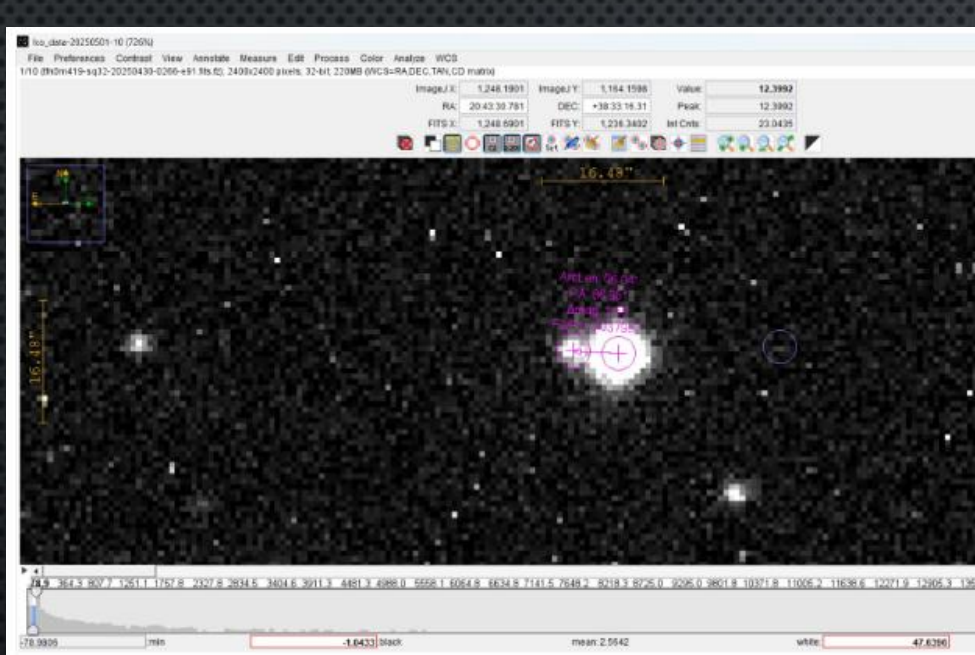
- Objective: Observe exoplanets and perform photometry with the EXOTIC program to refine their Mid-Transit times and periods
- Collaborations: NASA Exoplanet Watch, Las Cumbres Observatory (LCO), and the Micro Observatory.



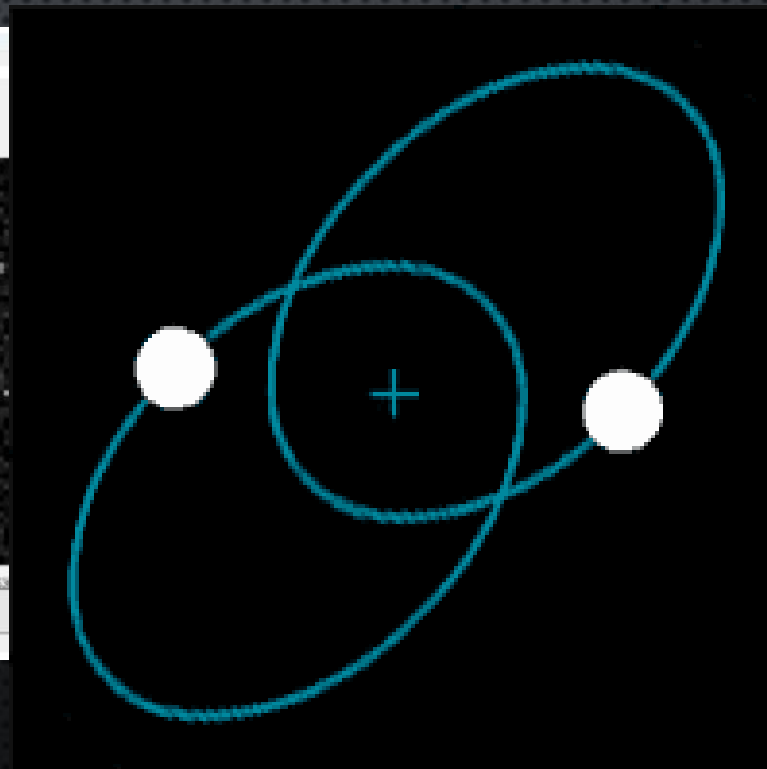
Nhi Dinh presents her exoplanet work at a conference

# Research project: Double-Star Research

- Objective: Observe double stars, perform astrometry on position angles & separations, and confirm the nature of binarity.
- Collaborations: Institute of Student Astronomical Research, Las Cumbres Observatory, etc.



A sample image of the double star system 20436+3834 (BRT 2232) on AstrolImageJ

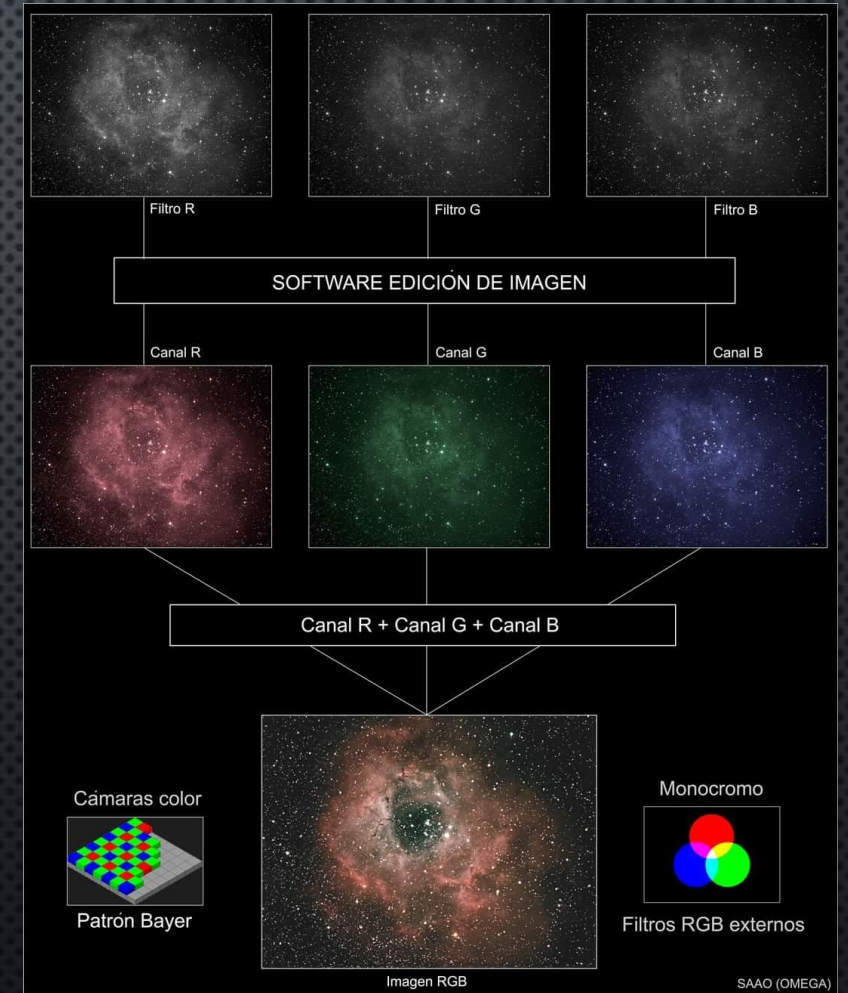


Mohammed Elattar presents his double star research at a university in a China

# ASE: Astrophotography

ASE means Applied Science & Engagement

- Objective: Develop skills in processing deep-space images.
- Collaborations: Las Cumbres Observatory



Steps in image Processing

# ASE: Amateur Radio on the ISS (ARISS)

- Objective: Students and learners connect and interact with an astronaut on the ISS.
- Collaborations: ARISS-Amateur Radio on the International Space Station



## Contact Brief

Pan-African Citizen Science e-lab  
Multiple locations in Africa

Friday, April 18 10:26 UTC | 6:26 AM ET | 11:26 AM WAT

On the ISS: Nichole Ayers KJ5GWI ISS Call Sign: OR4ISS

On the Earth: Telebridge via IK1SLD

Listen on 145.800 MHz FM



Nichole Ayers pictured during a Crew 10 event prior to launch - NASA Photo



# ASE: Telescope Project

- Objective: Support local groups to acquire handy telescopes for outreach and teacher training.
- Collaborations: Jean Pierre Grootaerd and the African Astronomical Society.



Display of some of the telescopes donated to our African collaborators, from left to right: Senegal, Uganda, Botswana, and Zimbabwe.

# ASE: Astronomy Lectures and Podcasts

- Objective: Deliver free astronomy lessons via social media and podcasts
- Collaborations: Free AstroScience



# Research Telescopes



Display of some robotic telescopes we use, e.g., Las Cumbres Observatory, Slooh, and MicroObservatory, which can be operated remotely using a computer. We obtained access through strategic partnerships. We also retrieve and use data from the Hubble Space Telescope and the James Webb Space Telescope (JWST). The asteroid datasets are obtained from the Pan-STARRS and Catalina Sky Survey by the International Astronomical Search Collaboration (IASC).

# Achievements

Impacted tens of thousands of learners, including teachers, students, and STEM enthusiasts across more than 50 countries in Africa and beyond.

Made over 93 asteroid discoveries.

15+ research papers published or under peer review in international journals.

Built Africa's largest citizen-science astronomy network through PACS e-Lab.

Distributed 10 telescopes to our teams in Malawi, Morocco, Senegal, Libya, Sudan,, Lesotho, Botswana, Zimbabwe, Gabon and Uganda.

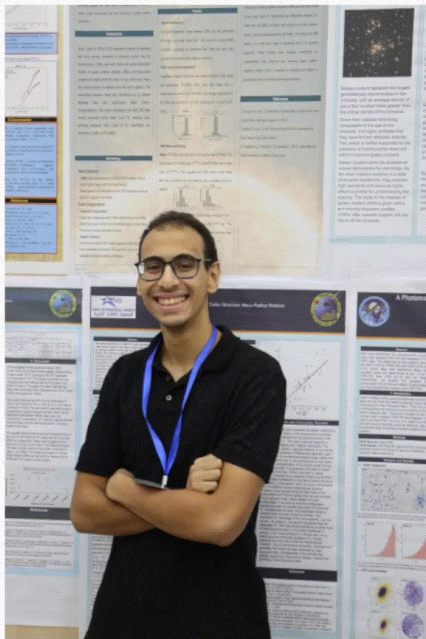
Secured access to professional observatories, including Las Cumbres Observatory, Slooh, and MicroObservatory.

Forged partnerships with NASA, IASC, ARISS, LCO, and over 15 international Scientific institutions.

Learners have participation in over 20 international conference presentations, including keynote invitations.

Featured in multiple local, regional, and international media outlets for advancing African space science.

# Some picture excerpts from project participation



## Egypt

Poster presentation by Mohamed Mostafa Elattar  
at the 4th Arabic Advanced School in  
Astrophysics, Kottamia Astronomical Observatory,  
Egypt, titled *Unveiling a Binary Star: New  
Astrometric Analysis of WDS 01497+5355 ES 761*



# Contributions to the United Nations SDGs

**4** QUALITY  
EDUCATION



**5** GENDER  
EQUALITY



**8** DECENT WORK AND  
ECONOMIC GROWTH



**9** INDUSTRY,  
INNOVATION  
AND INFRASTRUCTURE



**10** REDUCED  
INEQUALITIES



**16** PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS



**17** PARTNERSHIPS  
FOR THE GOALS



# Connect on social media



Facebook

## Pan-African Citizen Science e-Laboratory

862 likes · 1.3K followers



We promote STEM education through hands-on activities in Astronomy and Space Science in Africa 🌍



X

## Pan - African Citizen Science e - Laboratory

🌍 Get Verified

@pacselab

We promote STEM education through hands-on activities in Astronomy and Space Science in Africa 🌍

📎 Education 📍 Africa 🔗 [pacselab.space](https://pacselab.space)

📅 Joined November 2022 >

165 Following 167 Followers

+ IG pacselab\_ @ ☰



Your thoughts go here...

## Pan-African Citizen Science e-Laboratory

689 posts 473 followers 98 friends

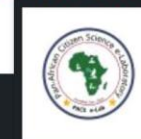
Education

We promote STEM education through hands-on activities in Astronomy and Space Science in Africa 🌍 · [Add interests](#)

🔗 [www.pacselab.space](https://www.pacselab.space) and 3 more

👤 Pan-African Citizen Science e-Laboratory 7 r...

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LinkedIn

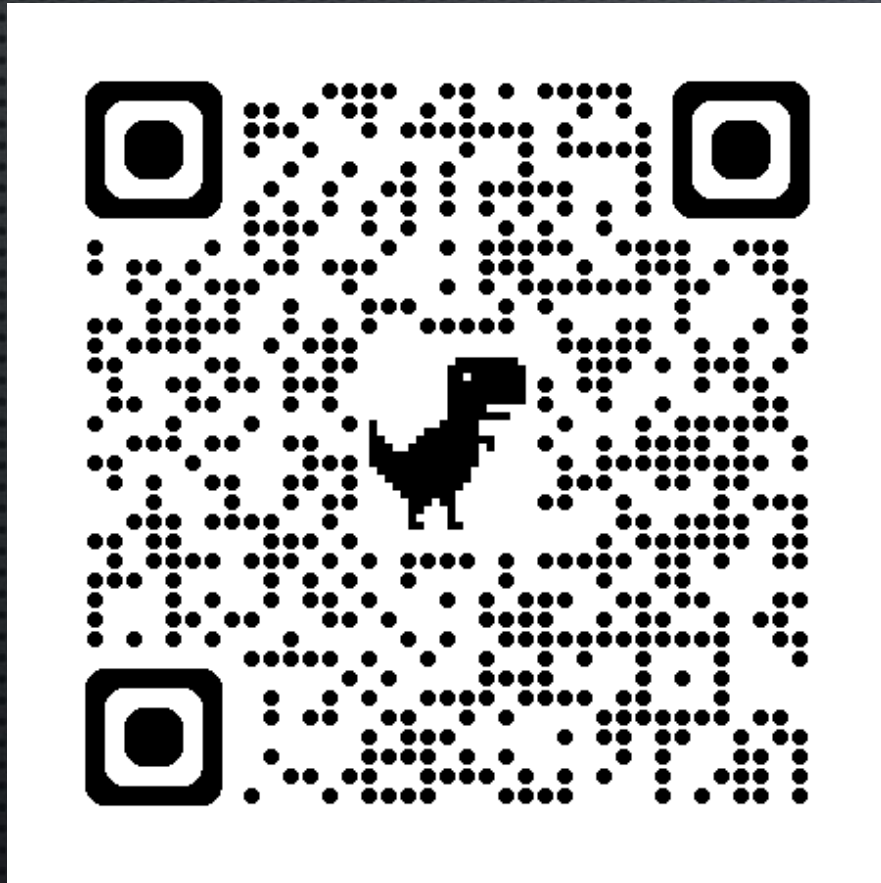


## Pan-African Citizen Science e-Laboratory

We promote STEM education through hands-on activities in Astronomy and Space Science in Africa 🌍

Education · Online · 1K followers  
201-500 employees

# Contact PACS e-Lab for Collaboration



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