



Broadening Participation

QuarkNet Centers of Interest

QuarkNet centers reach a broad population.

Minority-serving examples:

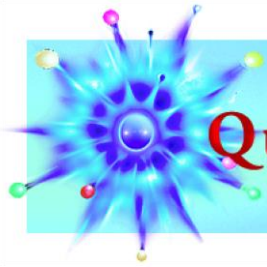
- **University of Puerto Rico Mayagüez**
- **University of New Mexico**
- **Sanford Lab/Black Hills State**
- **Catholic University of America (D.C.)**

Rural examples:

- **Idaho State University**
- **University of Oklahoma, Oklahoma State**

More...





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Broadening Participation

Needs Assessment Workshops

Pilot initially with ~3 centers.

Bring teachers of underserved students together to listen and learn how their needs and interests might align with QuarkNet goals and programs.

Based on pilot, identify new resources and adapt workshops to better support these teachers.

Possibly extend Needs Assessment Workshops beyond pilot.



Broadening Participation

Science, Technology, Engineering, Art, & Math (STEAM)

Partnership with artist/educator
Agnes Chavez and others.

Started as outreach to schools in
New Mexico that serve high numbers
of Native American students.

Evolved into integrating STEAM into teacher workshops:

- **New Mexico 2023 teacher workshop → 2023
Albuquerque International Balloon Fiesta**

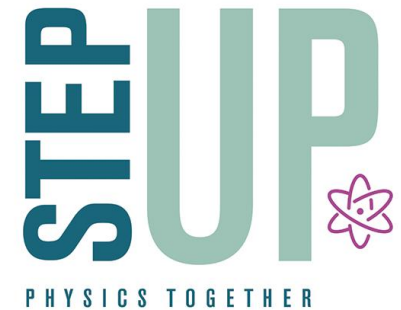




Broadening Participation

STEP UP

STEP UP provides high school teachers with resources to reduce barriers and inspire young women to major in physics.



QuarkNet–STEP UP partnership began in 2019.

Numerous STEP UP workshops given by QNet STEP UP ambassadors, and more than 100 teachers trained by QNet STEP UP ambassadors to date.

QNet continues to offer STEP UP workshops and to reference STEP UP resources.



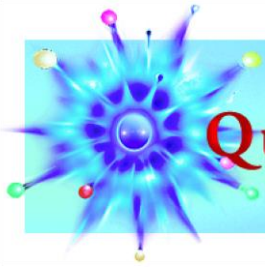
Broadening Participation

Impact of Cosmic Watches

Extend the reach of authentic research activity to all students, not just research groups, by moving cosmic ray studies into classrooms.

Increase the number of teachers using cosmic rays to teach about elementary particles and observing the invisible.

48 cosmic watches (MIT design) produced at University of Notre Dame; undergoing testing; activities developed by fellows; teachers will pilot activities in classrooms in the fall.

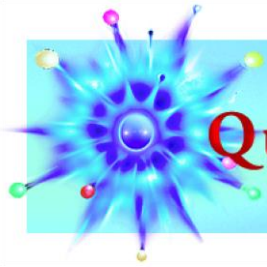


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Broadening Participation

Impact of Cosmic Watches





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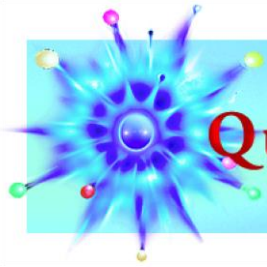
Broadening Participation

IRIS-HEP & QuarkNet Camps

Coding Camp 2 plus 6 smaller events required elevating more teachers to fellows & reaching more teachers from non-QuarkNet areas in the U.S.

Increasing diversity – Fellows:

- **1st 2 Latina, 1st AAPI, & 1st 2 Black fellows**
- **Women fellows increased from 40% to 53%; half are Coding fellows.**
- **2022 CC2 – led entirely by women**



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IRIS-HEP & QuarkNet Camps

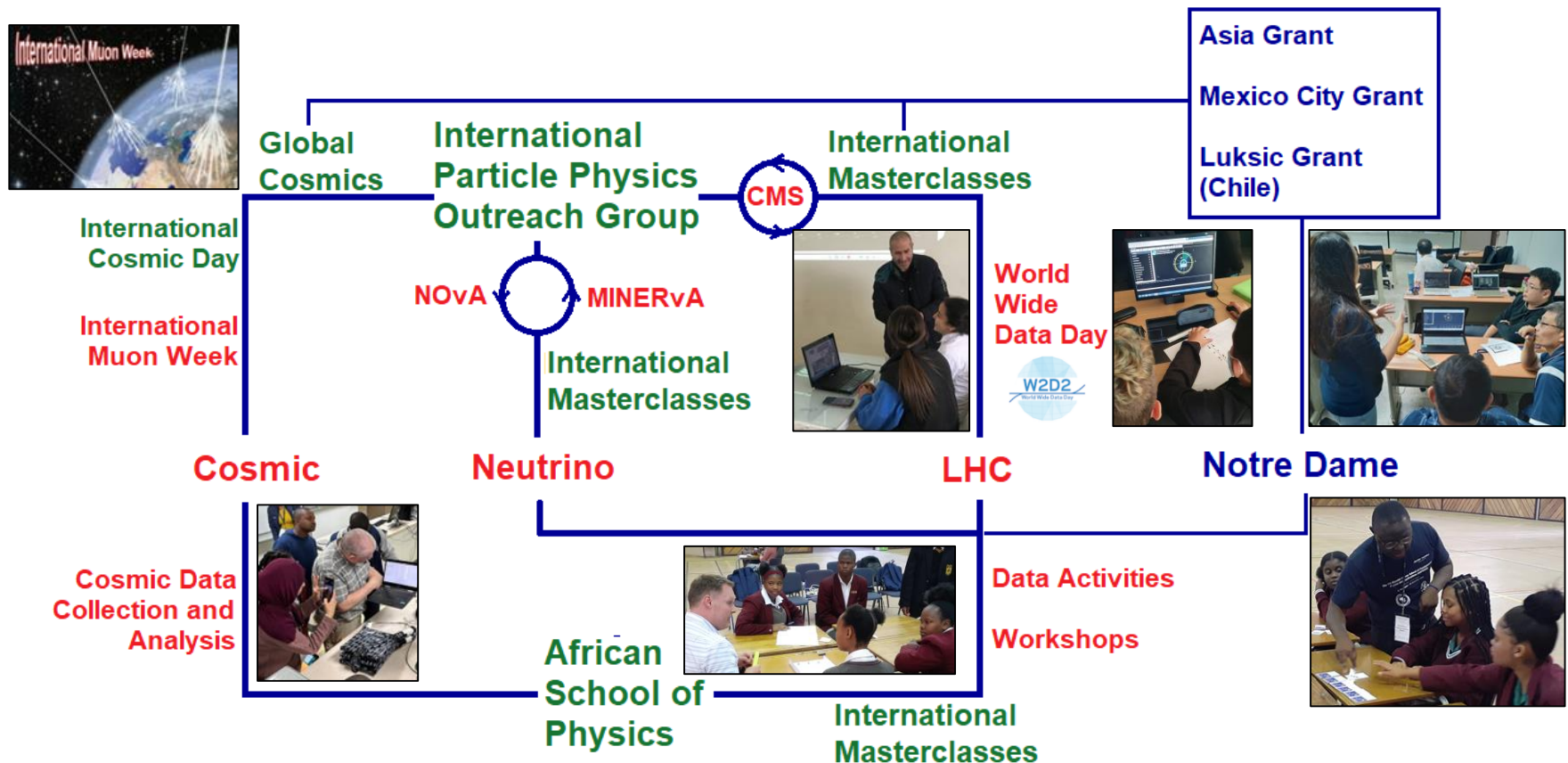
Increasing diversity – Participants:

- **Camps & short workshops include more women, Black, & Latinx teachers, teachers at Title 1 schools, and teachers of marginalized students**
- **2022 CC1 - QNet's first group of 4 Black women at a camp**



Broadening Participation

International Collaboration and Outreach





Broadening Participation

Active in Professional Organizations

American Physical Society

American Association of Physics Teachers

- Outreach to schools near conference in partnership with AAPT Contemporary Physics Committee.

Local chapters of NSTA, AAPT, etc.

Snowmass

Others...

[Link to presentations](#)