



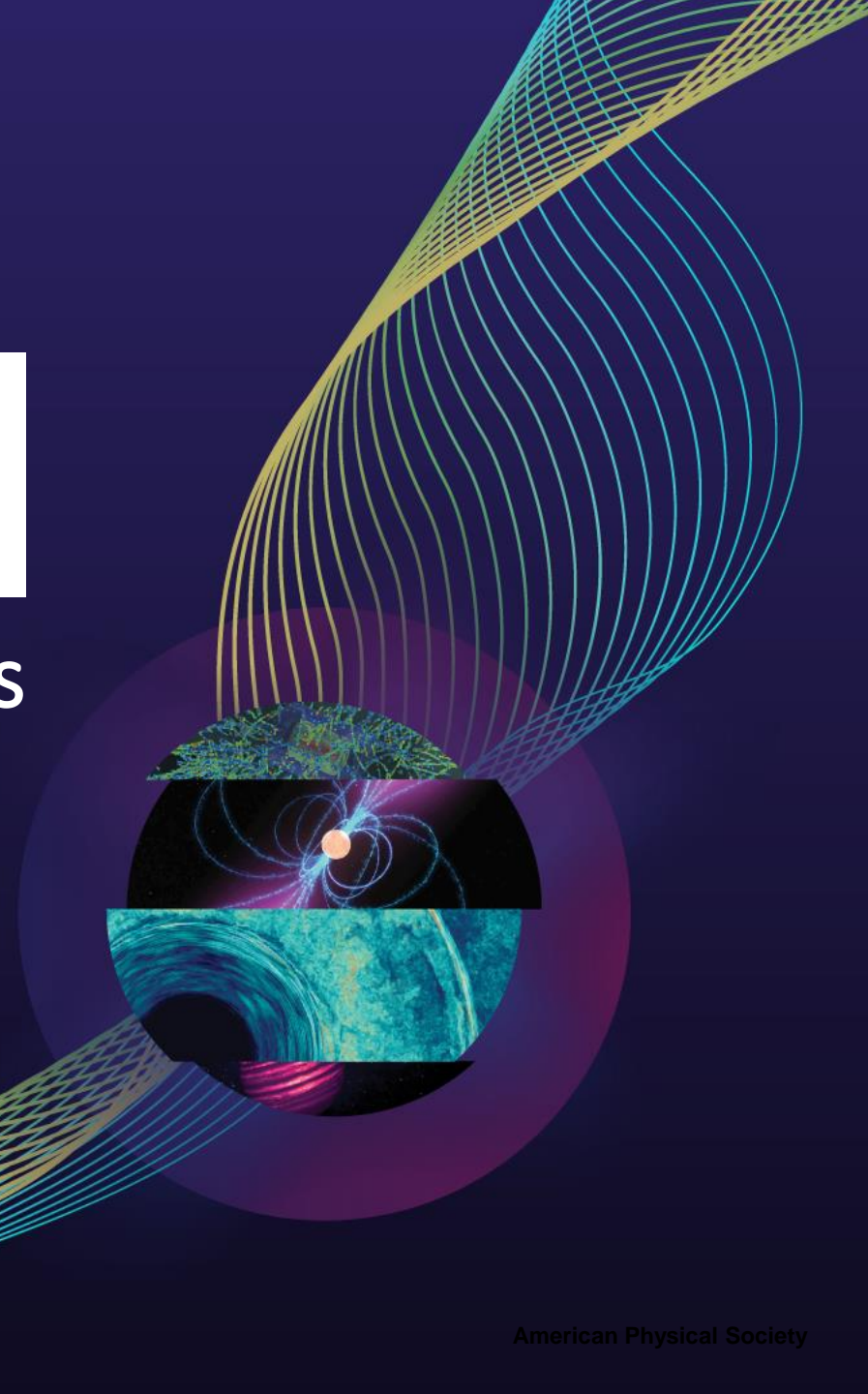
APRIL MEETING 2022



QuarkNet: Bringing 21st Century Physics Directly to Teachers and Students

Shane Wood, QuarkNet

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What is QuarkNet?



Long-term teacher
professional
development program
sponsored by NSF

~50 centers

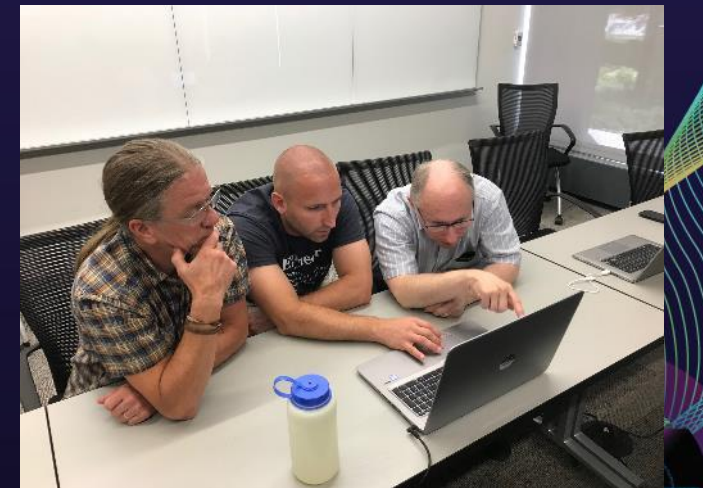
~500 teachers



Center Workshops

Local Leadership:
Mentor(s)
Lead Teacher(s)

Take advantage of
local offerings



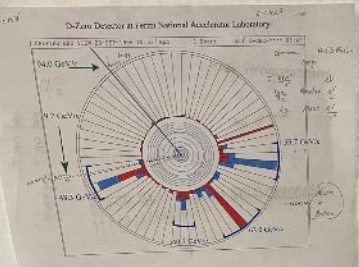
Center Workshops

“Student Hat” and
“Teacher Hat”



Implementation
Discussions

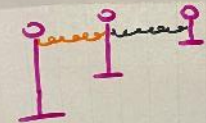
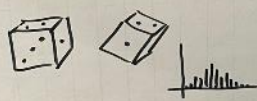
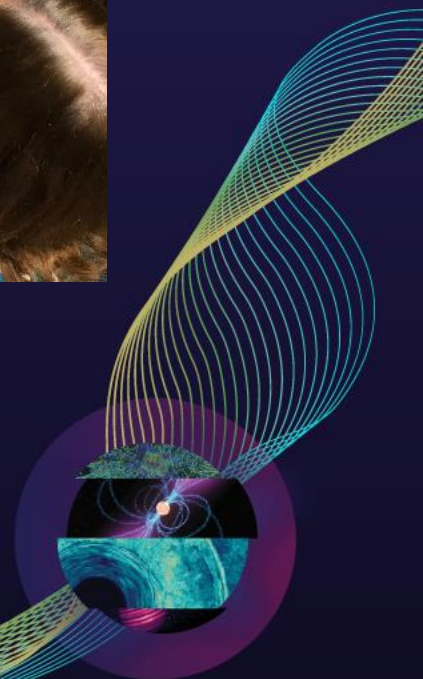
Implementation



- Vectors using D-Zero data
- CRMD
- Proto Dune - Regular Class
- Rotary motion probe to take coupled pendulum data
- Half-life dice activity - Use cross-curriculum for statistics/research + Chemistry
- Using group data with class histogram then have students reflect

class histogram

sticky notes

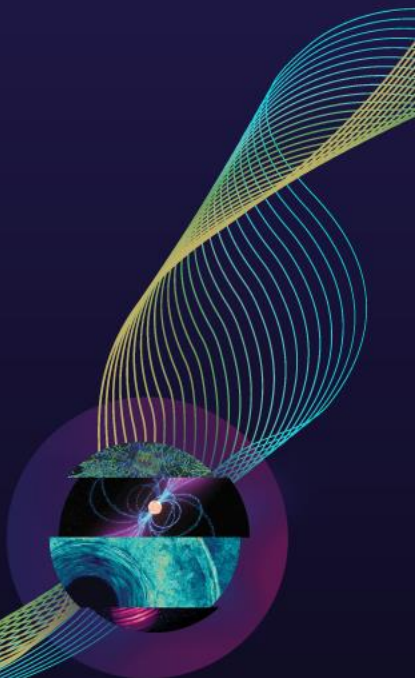
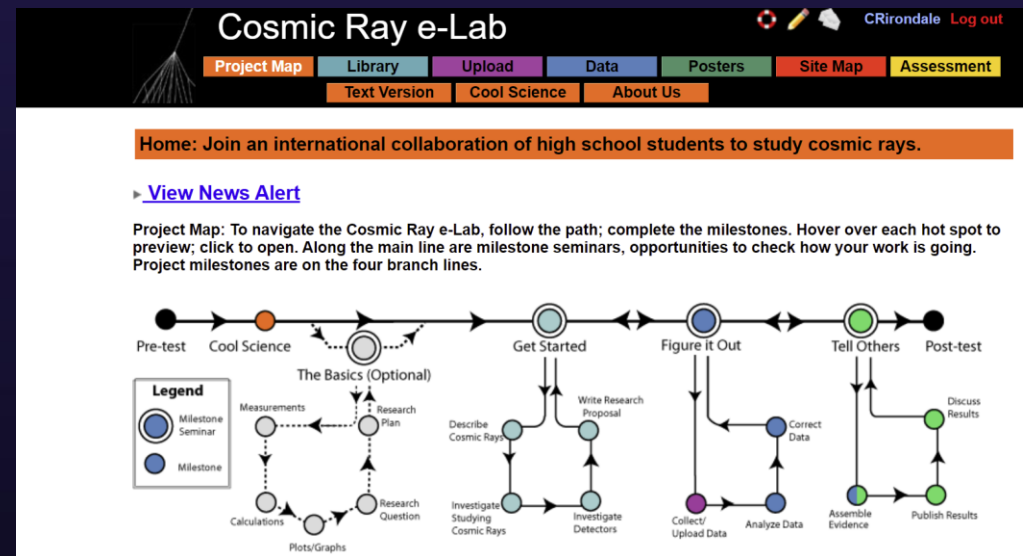




Data Activities
Portfolio*

Cosmic Ray Muon
Detectors

e-Labs

Friday Flyer Newsletter



National & International Opportunities

Data Camp

Coding Camp &
Coding Camp II

HST & ITW (@ CERN)

Other Special
Opportunities



Events for Students

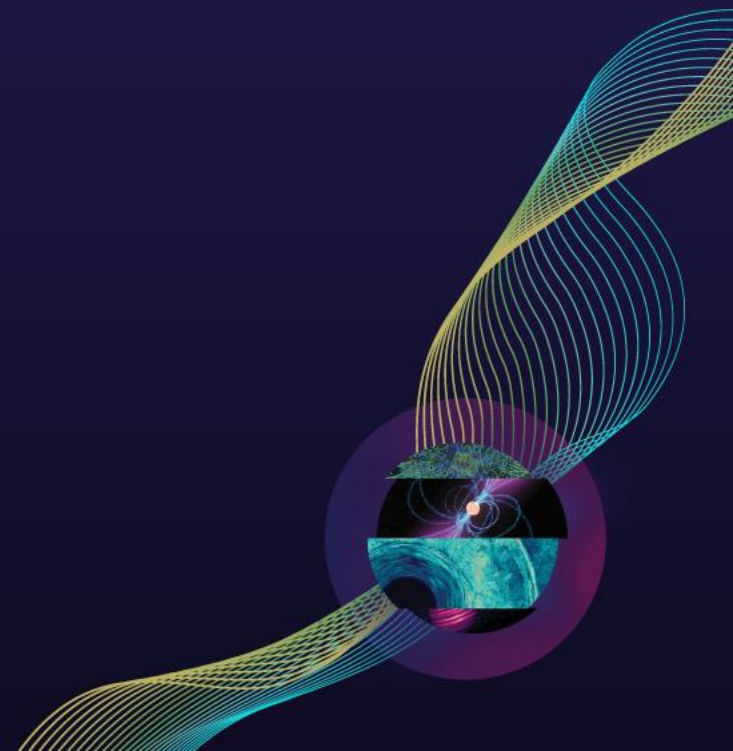
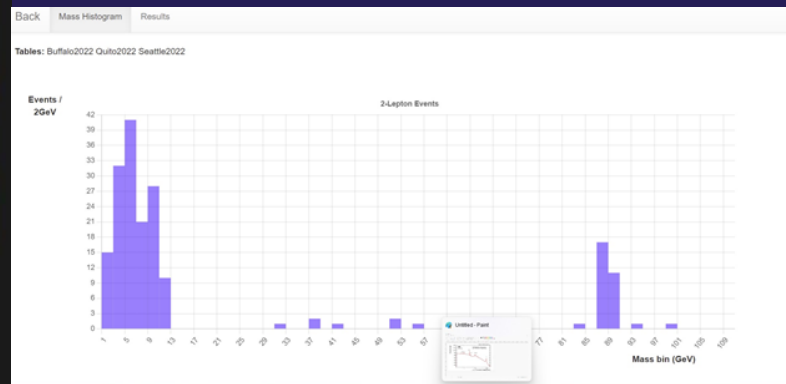
Masterclasses

World Wide Data Day

International Muon
Week

Outreach Events

Other Special Projects

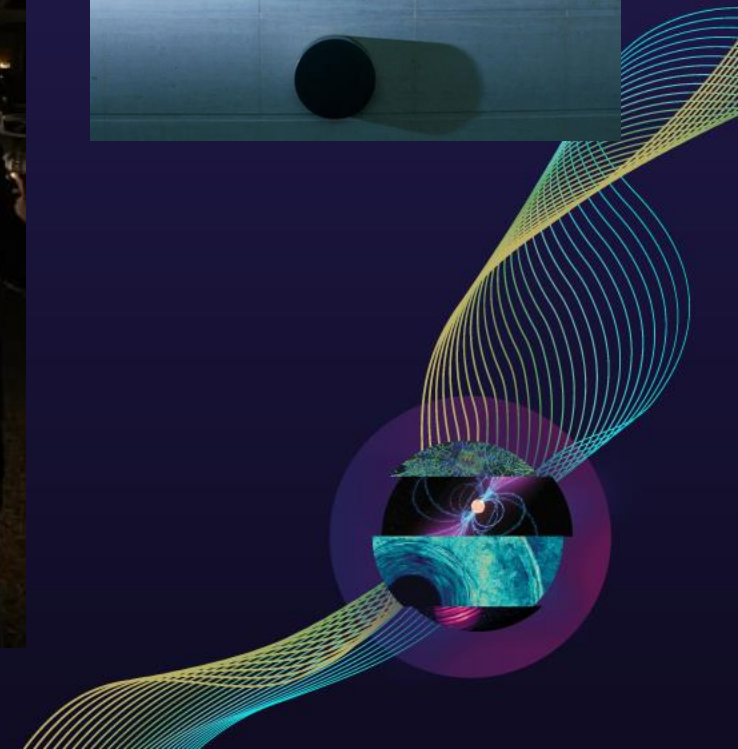


Science, Technology,
Engineering, Art & Math

Agnes Chavez, Artist



STEAM



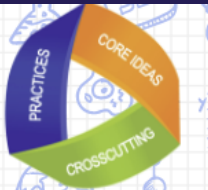
Connect to Standards

Partner with an Educator

- Next Generation Science Standards (NGSS) → → → → →
- Common Core
- Advanced Placement (AP)
- International Baccalaureate (IB)
- Other national, state or local science standards

NGSS: Science and Engineering Practices

1. Asking Questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argumentation from evidence
8. Obtaining, evaluating, and communicating information



Final Thoughts

Type of activity	Impact
<p>Stand-alone “one and done” experiences</p>	<p>Can provide motivation and expose teachers and students to current research. However, this will likely have little long-term impact on what happens in the classroom (i.e., “formal setting”).</p>
<p>Develop relationships</p> <p>Contribute toward long-term efforts</p> <ul style="list-style-type: none"> • Partner with educators, educational programs, or associations <ul style="list-style-type: none"> • QuarkNet and other Teacher Professional Development programs • AAPT (national or local chapters) • NSTA (national or local chapters) 	<p>Can lead to changes in the classroom over time that can impact a large number of students.</p>

