QuarkNet Neutrino Workshop Resources

6/5/2020

Rick Dower

Classroom activities from the MINERvA experiment: <https://neutrino-classroom.org>

Neutrino Mystery and History (Rick Dower)

Recording of QuarkNet Webinar talk (length with Q&A = 1:13:30):

https://notredame.zoom.us/rec/play/6JJ7drutrW83S9ec5QSDAv9xW9W5KKus0SFPqaUJyEazUSJQNgWgMLcbM7Cqdo-EY-AzyI3dqh0DajpF?startTime=1588791662000&\_x\_zm\_rtaid=m3eFqIf4TJKKYRfDxcEFjQ.1591110807852.fa0ab8e843a13e607b919a1e099d3e45&\_x\_zm\_rhtaid=747

Slides: https://quarknet.org/sites/default/files/Nu%20Mystery-History.pdf

Script: <https://quarknet.org/sites/default/files/Nu%20Mystery-History%20Script1.pdf>

Neutrinos on YouTube

Don Lincoln:

Neutrinos Nature’s Ghosts (4:57) <https://www.youtube.com/watch?v=J8dRZjOD_ME>

Neutrinos: Nature’s Identity Thieves (5:57) <https://www.youtube.com/watch?v=RGv-pcKRf6Q>

How Do You Detect a Neutrino? (9:33) <https://www.youtube.com/watch?v=gKO8f79Ekew>

How Do You Make a Neutron Beam? (5:18) <https://www.youtube.com/watch?v=y8kJFXhN7Po>

What is the DUNE Experiment? (10:20) <https://www.youtube.com/watch?v=2os1rfVXRCM>

Sterile Neutrinos and Seesaws (7:19) <https://www.youtube.com/watch?v=bgg32f6wl4o>

Martin Archer: Three-way coupled pendulum& Neutrinos (5:05)

<https://www.youtube.com/watch?v=YqVF3NSc5xg>

SuperKamiokande: ”The giant science experiment hinting for the ‘ghost particle’, neutrinos”

(6:31) <https://www.youtube.com/watch?v=aE6vRfCp4E4>

CERN: First Appearance of the Tau Neutrino (6:41) <https://www.youtube.com/watch?v=M3aB_zUZ1c8>

“Measuring the Unexpected – Ice Cube” (7:53) <https://www.youtube.com/watch?v=aE6vRfCp4E4>

Books

*Neutrino*, Frank Close, Oxford University Press, 2010

A concise (181 pages) and engaging history of efforts to explore and understand neutrino interactions.

*Neutrino Hunters*, Ray Jayawardhana, Scientific American/Farrar, Straus, and Giroux, 2013

A short (243 pages) and lively account that combines a look at neutrino history with references to current experiments like Ice Cube and KATRIN.