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Improving Analysis Efficiency with a Phased Array Trigger as Part of the Askaryan Radio Array[1] KAELI HUGHES, University of Chicago, ARA COLLABORATION — The Askaryan Radio Array (ARA) at the South Pole is designed to detect the radio emission induced by ultra-high-energy cosmic neutrinos that interact within the ice. ARA consists of five independent stations, including one station equipped with an extra string of antennas as well as a phased array trigger. This trigger design adds signals together in sets of predetermined time delays before triggering, with each set of time delays corresponding to a specific direction. Because signals add coherently, while noise largely does not, this effectively lowers the trigger threshold compared to the other ARA stations. In this talk, I will present work on the latest ARA analysis, which uses one year of data from this newest station, and show how the improvements at low thresholds at the trigger level can lead to improved analysis efficiency for weaker signals and lower energies.

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