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Radio Transient Detection and a Future Radio GZK Array

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The Askar'yan Radio Array of antennas (ARA) is currently being planned for construction and deployment in Antarctica in the coming years. It will cover an area of order 80 square kilometers which will almost certainly be sufficient to prove the Askar'yan technique and establish existence of the GZK neutrino flux. ARA will utilize waveform capture of transient impulses in order to reduce anthropogenic backgrounds and provide additional information for event reconstruction. However, it is possible to reconstruct events entirely from information available at trigger level. This technique may prove viable for future large-scale arrays which must be constructed to study the physics of UHE sources and to use the GZK neutrino flux as a probe for physics beyond the Standard Model.

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