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The third track (or ring): speeding up neutrino oscillation measurements using resonance neutrino interactions

Neutrino oscillation experiments running at low to medium neutrino beam energies usually select "quasi-elastic" neutrino interactions, because they have an easily recognized signature and permit reasonably good neutrino energy reconstruction. Based on generic, simplified Monte-Carlo and oscillation tools, we discuss how the addition of "single pion production" (resonance) interactions could enhance or accelerate neutrino oscillation measurements, as well as the extra challenges that such an addition would pose: the additional systematic errors and neutrino interaction measurements in-situ that would be needed.

Primary author: Mr STAMOULIS, Panos (University of Athens)

Presenter: Mr STAMOULIS, Panos (University of Athens)

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