



Poster session 1 - Monday 4 July

P1.019 Neutrino physics with accelerator driven subcritical reactors

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Accelerator Driven System (ADS) subcritical reactors are being developed around the world, to produce energy and, at the same time, to provide an efficient way to dispose of and to recycle nuclear waste. Used nuclear fuel, by itself, cannot sustain a chain reaction; however in ADS reactors the additional neutrons which are required will be supplied by a high-intensity accelerator. This accelerator will produce, as a by-product, a large quantity of $\nu\mu$ via muon Decay At Rest (μ DAR). Using liquid scintillators, it will be possible to measure the CP-violating phase δ_{CP} and to look for experimental signs of the presence of sterile neutrinos in the appearance channel, testing the LSND and MiniBooNE anomalies. Even in the first stage of the project, when the beam energy will be lower, it will be possible to produce ν_e via Isotope Decay At Rest (IsoDAR), which can be used to provide competitive bounds on sterile neutrinos in the disappearance channel. I will consider several experimental setups in which the antineutrinos are created using accelerators that will be constructed as part of the China-ADS program.