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The front-end of IsoDAR (15' + 5')

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IsoDAR is a cyclotron based neutrino experiment, proposed to investigate the short baseline anomalies by measuring $\bar{\nu}_e$ disappearance over an L/E of approximately 0.6-7.0 m/MeV. When paired with a kiloton class detector like KamLAND, IsoDAR would be able to distinguish between a 3+1 and 3+2 sterile neutrino model and cover the current global allowed region to 5σ in less than 3 years. In order to meet this desired sensitivity, there are several key technologies that IsoDAR must expand on. This talk will focus on the technologies associated with the design of the front-end of IsoDAR. In particular, I will discuss the development and testing of a high-current multicusp H_2^+ ion source and the idea of using a radio frequency quadrupole for axial injection into the cyclotron.

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