It is established that in the presence of Non-Standard Interaction (NSI) of neutrinos, the solar neutrino anomaly finds another solution known as LMA-dark solution with $\theta_{12} > \pi/4$. However, within the canonical paradigm that NSI originates from integrating out new heavy particles, the NSI effects will be too small to render the LMA-dark solution possible. I will introduce a model with new relatively light particles (with mass of few ten MeV) that can lead to the desired NSI effects compatible with the LMA-dark solution. Within this model, the bounds from NuTeV and CHARM II experiments on NSI are relaxed.