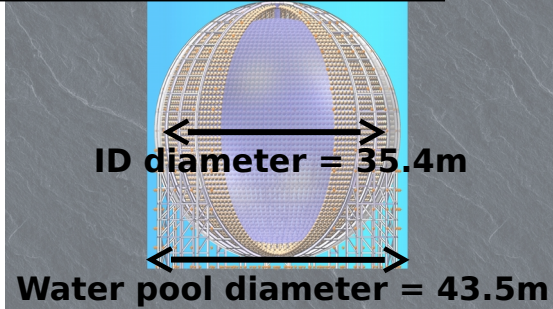


Reduction of the ^{14}C -background in JUNO

Philipp Kampmann and Livia Ludhova

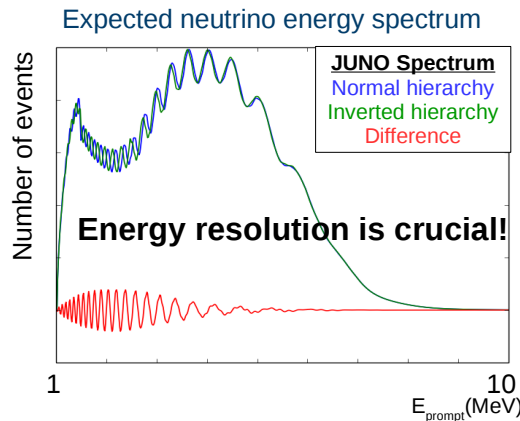
The JUNO experiment

20kt Liquid Scintillator
(organic)
~78% PMT coverage



Measure the neutrino mass hierarchy with 3σ to 4σ

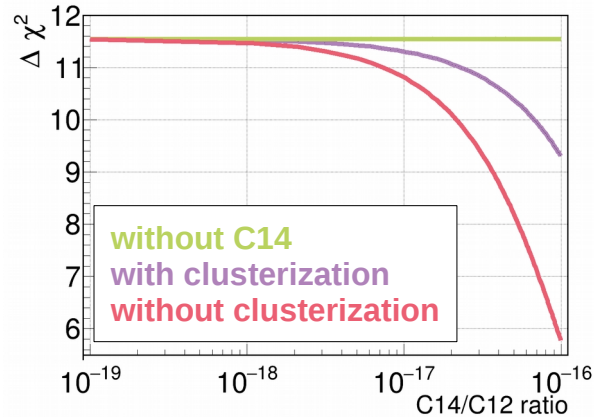
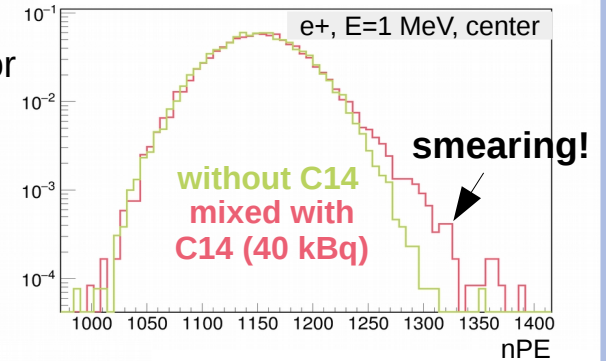
- Reactor anti-neutrino disappearance
- Detection via Inverse Beta Decay (IBD)
- Needs to be sensitive to small phase difference between hierarchies



^{14}C -background

- Much carbon in scintillator
 - Much ^{14}C
 - 5% pile-up events
 - Meas. energy gets smeared

Effect on monoenergetic positrons



^{14}C causes a huge loss of sensitivity to distinguish between the two mass hierarchies

3 Methods for suppressing the impact of ^{14}C

- Clusterization
- Analysis of spherical harmonics
- Likelihood test