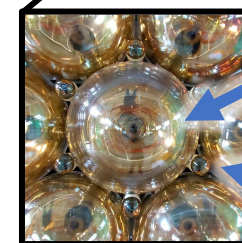
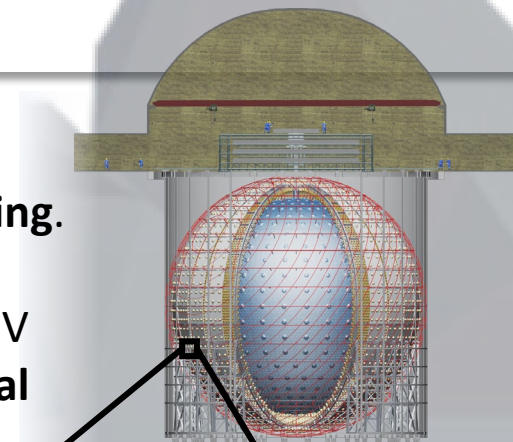




JUNO Calibration: hardware and strategy

A. Serafini on behalf of the JUNO collaboration

- The Jiangmen Underground Neutrino Observatory (**JUNO**) is a neutrino medium baseline experiment under construction in China aiming at the determination of **neutrino mass ordering**.
- To reach its desiderata, JUNO must reach an **unprecedented energy resolution** of 3% at 1 MeV and **energy-scale systematics** below 1%. To fulfill these requirements, JUNO will feature a **dual calorimetry system** consisting of **17612 20" Large-PMTs** and **25600 3" Small-PMTs**.
- As at reactor antineutrinos' energies (<10 MeV) the Small-PMTs operate in linear regime, they can be used as a **calibration reference** for channel-wise Large-PMTs non-linearities.
- In order to accurately **characterize the detector response**, a **multiple-source campaign** relying on a specifically designed **calibration system** has been developed.
- The proposed strategy consisting in the deployment of radioactive sources to 250 different locations will enable a complete **characterization of detector non-uniformities**, permitting the characterization of the **energy resolution** and energy-related **non-linearities**.



Large-PMT

Small-PMT

