

# Hardware and operation of JUNO's pre-detector OSIRIS

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The Jiangmen Underground Neutrino Observatory (JUNO), under construction in southern China, will determine the neutrino mass hierarchy (MH) by observing neutrinos from nuclear reactors at a distance of 53 km. To reach the desired sensitivity ( $> 3\sigma$ ) for MH, the radiopurity of the detector materials and especially the liquid scintillator (LS) plays a crucial role. To ensure the purity of the 20 kt target of JUNO, the OSIRIS pre-detector (Online Scintillator Internal Radioactivity Investigation System) has been constructed and is currently under commissioning. It will monitor the radiopurity of the LS during its production and the filling phase of the central detector of JUNO.

This poster will focus on the design principles and hardware of the OSIRIS pre-detector. The 9-by-9m water-filled detector tank holds a well-shielded acrylic vessel filled with 20-ton of LS. is currently under commissioning. Equipped with 76 PMTs, it detects scintillation light from radioactive decays in the LS. The poster will cover a description of the entire DAQ chain that is closely modelled to the later situation in JUNO as well as the Liquid Handling System that will permit continuous exchange of the LS during the JUNO filling phase.

## Poster prize

### Given name

Arshak

### Surname

Jafar

### First affiliation

University of Mainz

### Second affiliation

### Institutional email

arshakjafar@uni-mainz.de

### Gender

Male

### Collaboration (if any)

JUNO

**Primary authors:** JAFAR, Arshak (University of Mainz); Prof. WURM, Michael (University of Mainz); PI-LARCZYK, Oliver

**Presenter:** JAFAR, Arshak (University of Mainz)

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