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China-EU scientific cooperations on JUNO distributed computing

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The Jiangmen Underground Neutrino Observatory (JUNO) is an underground 20 kton liquid scintillator detector being built in the south of China and expected to start data taking in late 2021. The JUNO physics program is focused on exploring neutrino properties, by means of electron anti-neutrinos emitted from two nuclear power complexes at a baseline of about 53km. Targeting an unprecedented relative energy resolution of 3% at 1 MeV, JUNO will be able to study neutrino oscillation phenomena and determine neutrino mass ordering with a statistical significance of 3-4 sigma within six years running time.

These physics challenges are addressed by a large Collaboration localized in three continents. In this context, key to the success of JUNO will be the realization of a distributed computing infrastructure, which will satisfy its predicted computing needs.

The development of the computing infrastructure is performed jointly by the Institute for High Energy Physics (IHEP) (part of Chinese Academy of Sciences (CAS)), and a number of Italian, French and Russian data centers, already part of WLCG.

Upon its establishment, JUNO is expected to deliver not less than 2 PB of data per year, to be stored in the above mentioned data centers throughout China and Europe. Data analysis activities will be also carried out in cooperation, according to a coordinated joint effort.

This contribution is meant to report on China-EU cooperation to design and build together the JUNO computing infrastructure and to describe its main characteristics and requirements.

Consider for promotion

No

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