

# JUNO's Sensitivity to Geoneutrinos

venerdì 21 giugno 2024 17:30 (2 ore)

## JUNO's Sensitivity to Geoneutrinos

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The Jiangmen Underground Neutrino Observatory (JUNO) is an experiment being built in China, which consists of a 20 kton liquid scintillator detector. The main objective of the experiment is to determine the neutrino mass ordering by measuring reactor antineutrinos at a 53 km baseline. The experiment is also expected to have a high sensitivity to geoneutrinos: electron antineutrinos from natural radioactivity decays from  $^{238}\text{U}$  and  $^{232}\text{Th}$  in the Earth. The radiogenic heat released in these decays is in a well established relationship with the amount of geoneutrinos. Thus, the measurement of geoneutrino flux can provide an insight on the Earth's energy budget. Even more, distinguishing the signal coming from the Earth's mantle is a key feature which can unveil its convection scheme and contribution to the total radiogenic heat. Within the first year of data taking, JUNO will be able to exceed the precision of the existing results from Borexino and KamLAND experiments. With increased statistics, JUNO will be able to measure Uranium and Thorium components of the geoneutrino flux individually, and to establish their ratio, yet another important parameter for the geoscience community, giving insights about the Earth's formation process.

The poster will be focused on the geoneutrino's sensitivity study at the JUNO experiment, reporting the latest expected precision of measuring the total and independent contributions of geoneutrinos from Uranium and Thorium.

## Poster prize

Yes

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JUNO

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**Classifica Sessioni:** Poster session and reception 2

**Classificazione della track:** Geo neutrinos