

Perspectives and challenges for geoneutrino science

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In the coming years, the geoneutrino experimental dataset will be enriched beyond the existing Borexino and KamLAND experiments. Data from the Canadian SNO+ experiment are expected very soon, and the construction of the Jiangmen Underground Neutrino Observatory (JUNO) is nearing completion. We are entering an era of multi-site geoneutrino detection.

The road ahead for geoneutrino science is full of opportunities, not only for experimental physicists, but especially for Earth scientists. The geoscience community will play a crucial role in this scientific endeavor by constructing crustal and mantle models to improve the understanding of direct geoneutrino measurements. Looking even further, the distinctive features of the China Jinping Underground Laboratory and of the pioneering Ocean Bottom Detector promise to refine our understanding of the geoneutrino signals originating from uranium and thorium in the crust and mantle.

The talk will review all these perspectives and challenges for geoneutrino science including the detection of potassium geoneutrinos.

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Classification de Session: Mantle-crust connection, geoneutrinos and Earth's heat budget