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Neutrino Geoscience

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Neutrino geoscience is a newly born interdisciplinary field having as its main aim determination of the Earth' s radiogenic heat through measurement of antineutrinos released in decays of long-lived radioactive elements inside the Earth, so called geoneutrinos. In fact, such measurements are a unique direct way how to pin-down this key element for many geophysical and geochemical Earth's models. The large volume liquid scintillator detectors, originally built to measure neutrinos or anti-neutrinos from other sources, are capable to detect geoneutrinos, as it was demonstrated by KamLAND (Japan) and Borexino (Italy) projects. Several future experiments as SNO+ or JUNO have their measurements among their prime scientific goals. The talk will cover the status-of-art of this new field, summarizing its potential in terms of geosciences, the status of existing experimental results, and future prospects.

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