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Neutrinos from Reactors, the Earth and the Sun

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When Ray Davis first proposed the Homestake experiment, its primary mission was to study the Sun by detecting the neutrinos from solar fusion reactions. He probably did not expect that the neutrino deficit he detected would initiate several experiments that culminated in the discovery of neutrino oscillation. Although the central focus of current non-accelerator neutrino experiments is still the study of neutrino properties, we are moving back to using neutrinos as probes to investigate the processes that emit them in the first place. A number of new experiments will use neutrinos to examine the reactions inside the Sun. Some of these experiments will also measure anti-neutrinos from the decay of uranium and thorium in the Earth's crust and mantle, possibly providing information on the radiogenic contribution to the Earth's heat balance. Other detectors focus on reactor neutrino measurements for nuclear non-proliferation purposes. In this talk I will give a survey of current and upcoming experiments that look at neutrinos from these different sources.