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Neutrinos: Big Prizes for Tiny Particles

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In the last 20 years, three Physics Nobels have been awarded for discoveries related to the enigmatic particles known as neutrinos, including the 2015 prize announced this month. Neutrinos are produced in the hearts of stars like our sun, in nuclear reactors, and by particle accelerators and are usually detected using large particle detectors located deep underground. The remarkable properties of these ghostlike particles point to even more dramatic new discoveries by future physics experiments. Four William and Mary physics professors are engaged in this quest to explore new properties of neutrinos that promise to complete what has often been termed the “neutrino revolution”. This presentation will review the major discoveries of the past and discuss future experiments and the potential for new discoveries.