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Neutrinos at the South Pole with the PINGU detector

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IceCube and its low energy extension DeepCore have been deployed at the South Pole and taking data since early 2010. With a neutrino energy threshold of about 10 GeV, DeepCore allows IceCube to access a rich variety of physics including searching indirectly for WIMP dark matter and studying atmospheric neutrinos. A proposed new in-fill array, named PINGU, would continue to lower the threshold for neutrino detection. This would in turn provide the potential to study a great deal of new physics, including the determination of the neutrino mass hierarchy. This talk will discuss the PINGU detector and the new physics it makes available with a focus on the neutrino mass hierarchy.

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