

First operation of undoped CsI directly coupled with SiPM at 77 Kelvin

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The light yield of a small undoped CsI crystal directly coupled with two SiPMs at about 77 Kelvin (K) was measured to be 43.0 ± 1.1 photoelectrons (PE) per keV electron-equivalent (keVee) using X and gamma-ray peaks from an ^{241}Am radioactive source. The operation of an undoped CsI crystal coupled with two SiPMs at 77 K was the first attempt in the world. The high light yield together with some other technical advantages makes it a great neutrino and dark matter detector, particularly at the Spallation Neutron Source, Oak Ridge National Laboratory.

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