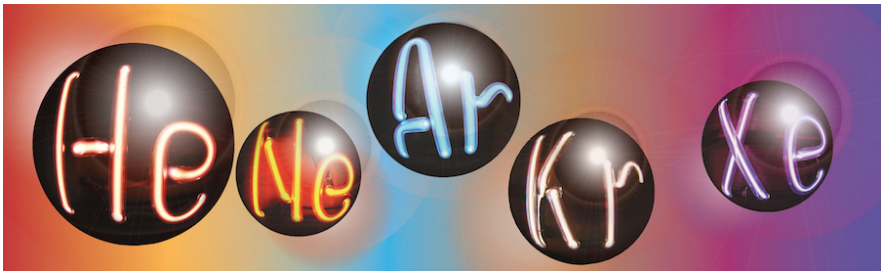

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The low-energy ionization backgrounds in the PandaX-4T experiment

Thursday, 23 October 2025 13:20 (20 minutes)

The energy threshold of traditional liquid xenon time projection chambers limits our sensitivity in detecting boron-8 neutrinos, light dark matter, and other low-energy signals. Ionization signals have demonstrated significant potential for expanding low-energy detection, but low-energy backgrounds remain the principal barriers to improving sensitivity. In this talk, we present our detailed investigations into the sources of low-energy backgrounds using PandaX-4T data and multiple methods we have developed to evaluate them.

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Session Classification: Signal reconstruction and identification

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