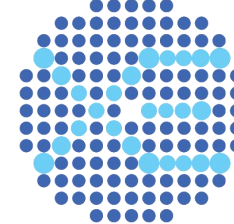




香港中文大學(深圳)

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XENON

Light Dark Matter Search with 7.8 Tonne-Year of Ionization-Only Data in XENONnT

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CPS-HEP 2026, Guangzhou

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Overview & Background Model

Total Mass: 8.5t

Threshold: S1+S2 → S2-only

NR: ~3keV → 0.5keV

ER: ~0.5keV → 0.04keV

Detector background:

Top electrodes/Gas background

*Suppressed by S2 width/AFT cuts
(negligible)*

Delayed electrons (DE) pile-up

Accidental electrons (AE) pile-up

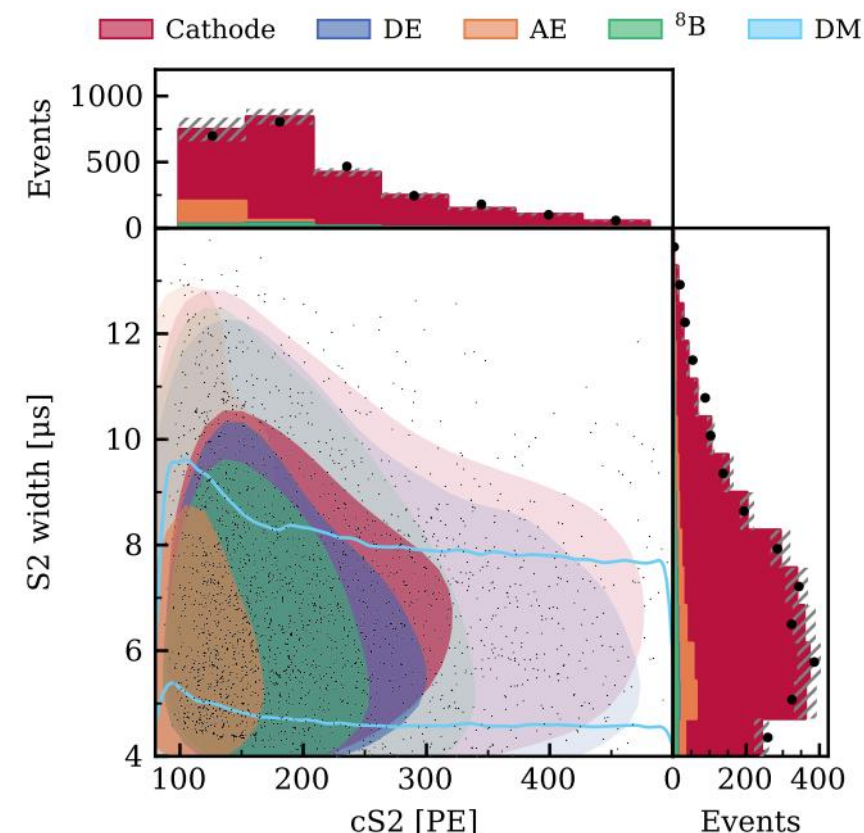
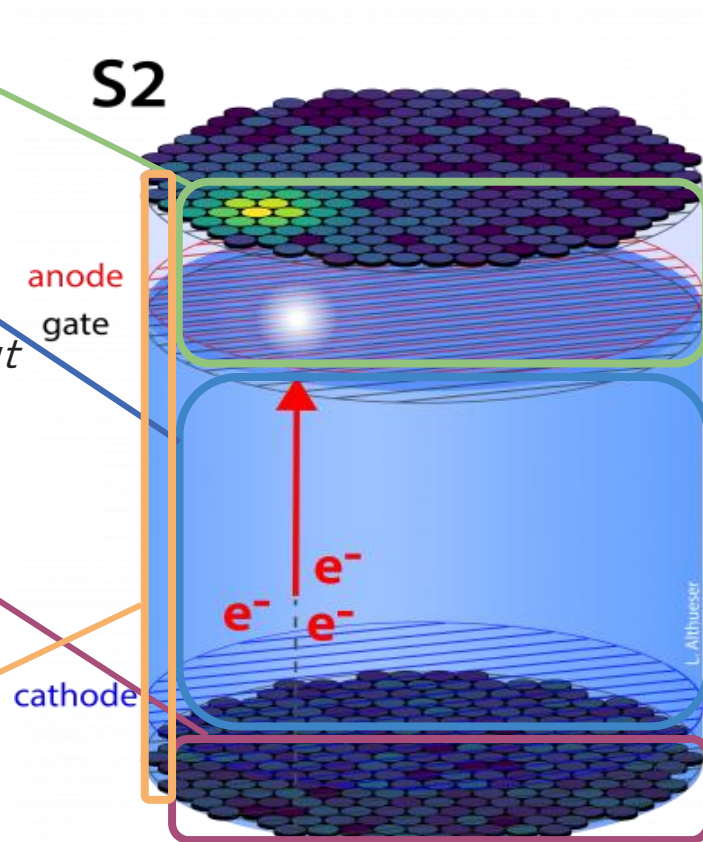
Suppressed by DE BDT & S2 pattern cut

Cathode background

Suppressed by Cathode BDT cut

Wall background

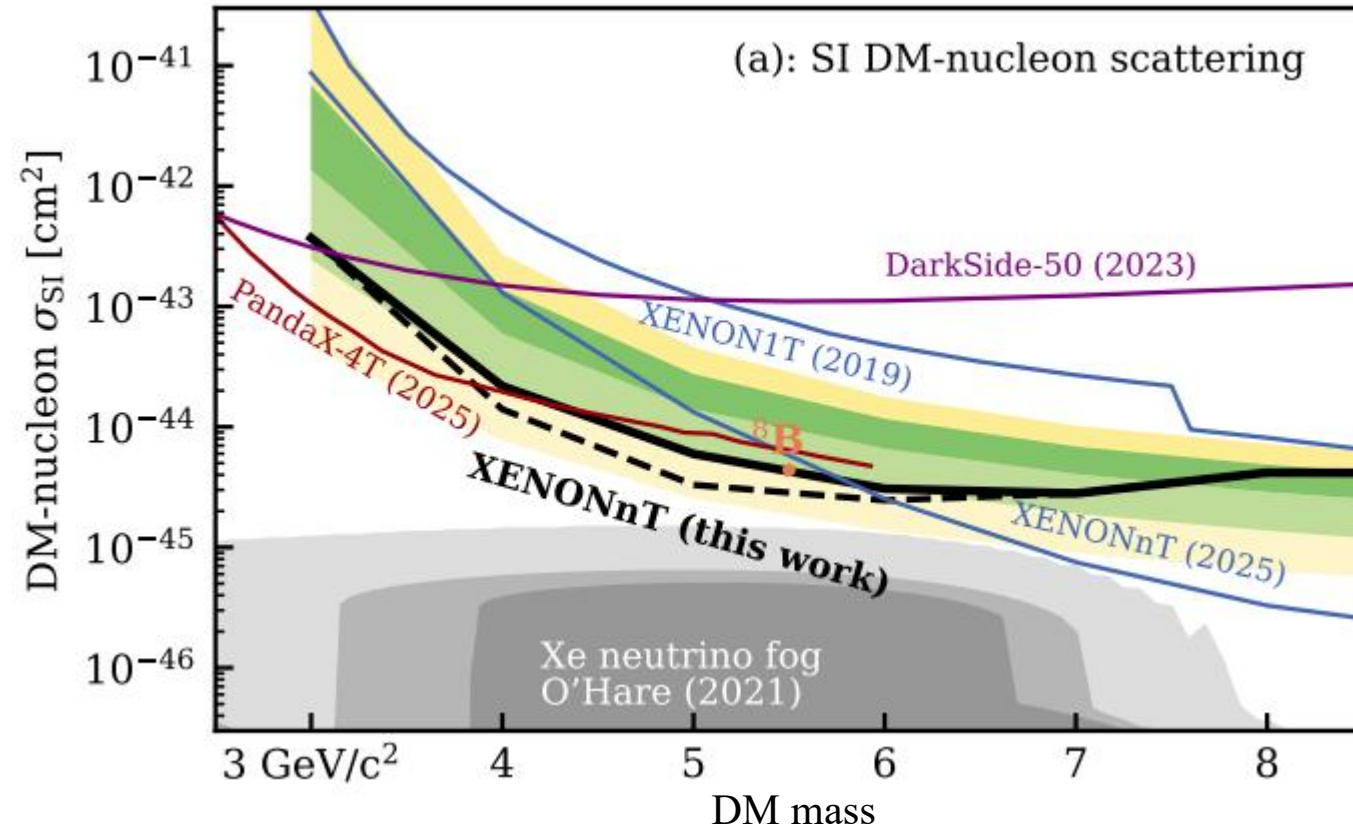
*Suppressed by fiducial volume
(negligible)*



Expected & Observed background events

LDM Search Result

Exposure: 7.8ty



90% confidence level upper limits on the DM-nucleon scattering

Thank you!