Measurement of coherent elastic neutrino nucleus scattering on germanium

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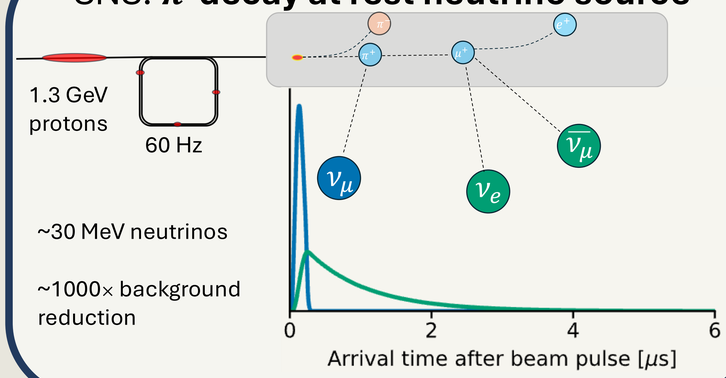
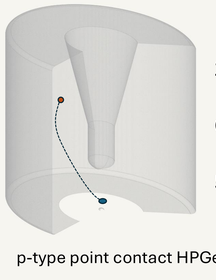
arXiv:2603.17951

SNS: π-decay at rest neutrino source



Ge-Mini: the **world's smallest neutrino detector**

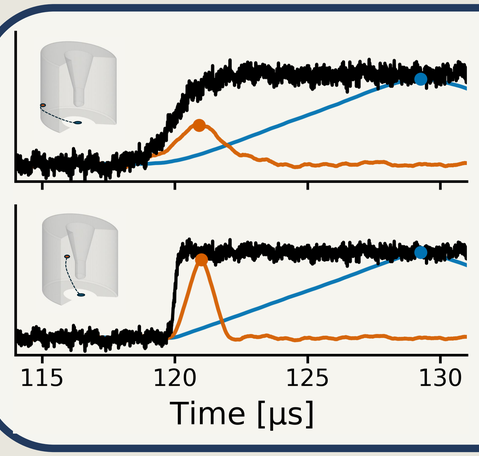


2.2 kg Ge crystals

Charge readout

500 eVee threshold

p-type point contact HPGe

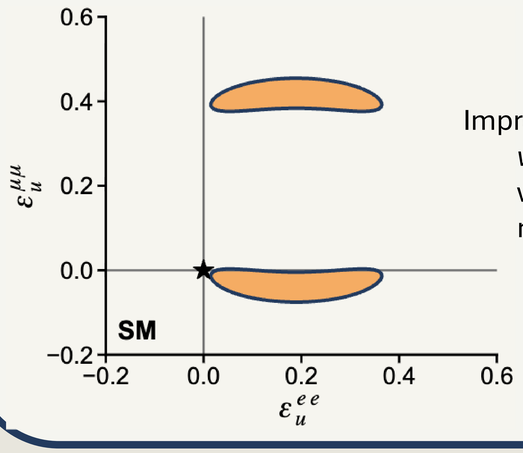


Pulse shape rejection

Surface backgrounds are reduced by slow-pulse cut

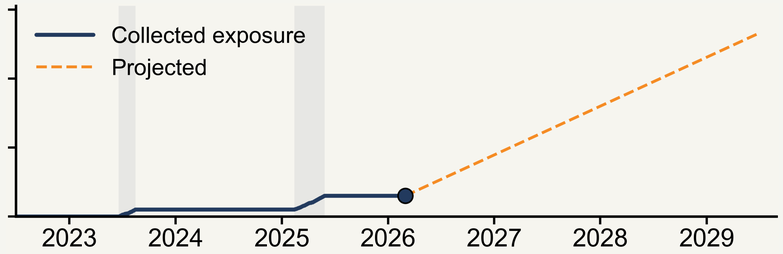
Quasi background-free CEvNS measurement

Precision CEvNS tests SM and BSM physics

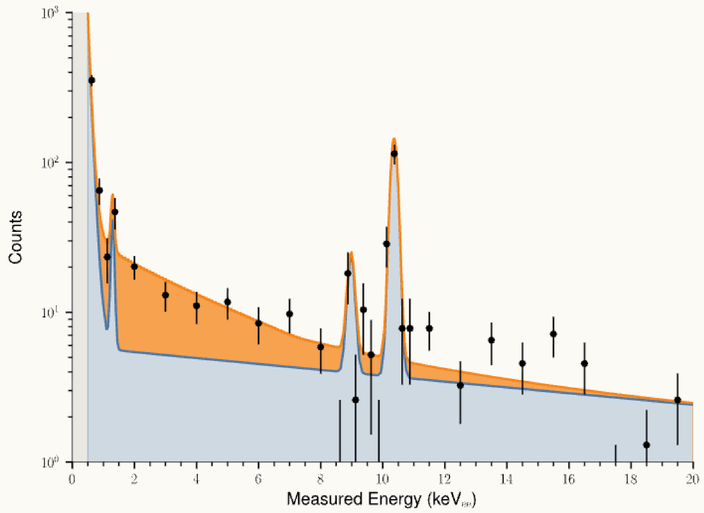


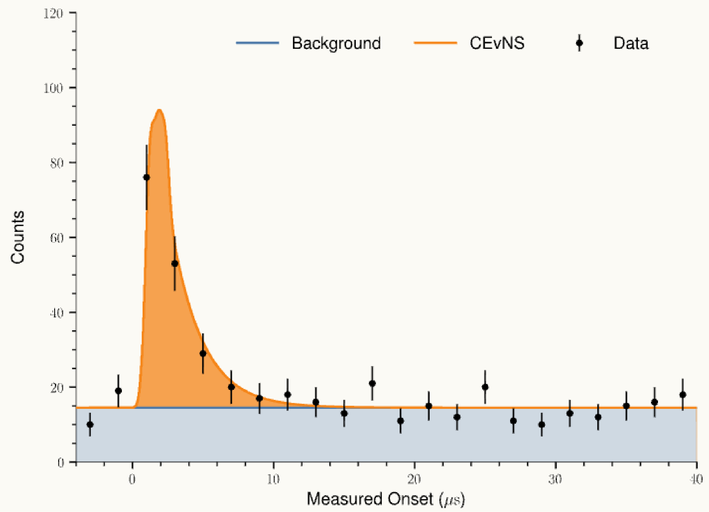
Improved constraints on:
vector NSI
weak mixing angle
neutron radius

What's next? Towards precision CEvNS



Ge CEvNS





First systematics-limited CEvNS measurement by COHRENT

124 Observed / 124 Predicted
8% statistical, 10% systematic uncertainty

Refs:
[1] SNS flux, PRD 106, 032003
[2] First Ge-Mini result, PRL 134, 231801
[3] This result, arXiv:2603.17951

NSF
NRF 한국연구재단 National Research Foundation of Korea
U.S. DEPARTMENT OF ENERGY | Office of Science
National Nuclear Security Administration
COHERENT SNS
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