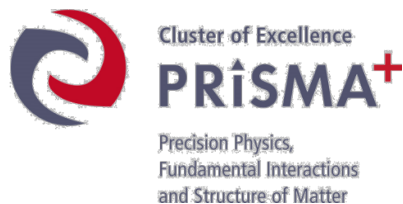


N01: Neutron skin and surface thickness of ^{208}Pb

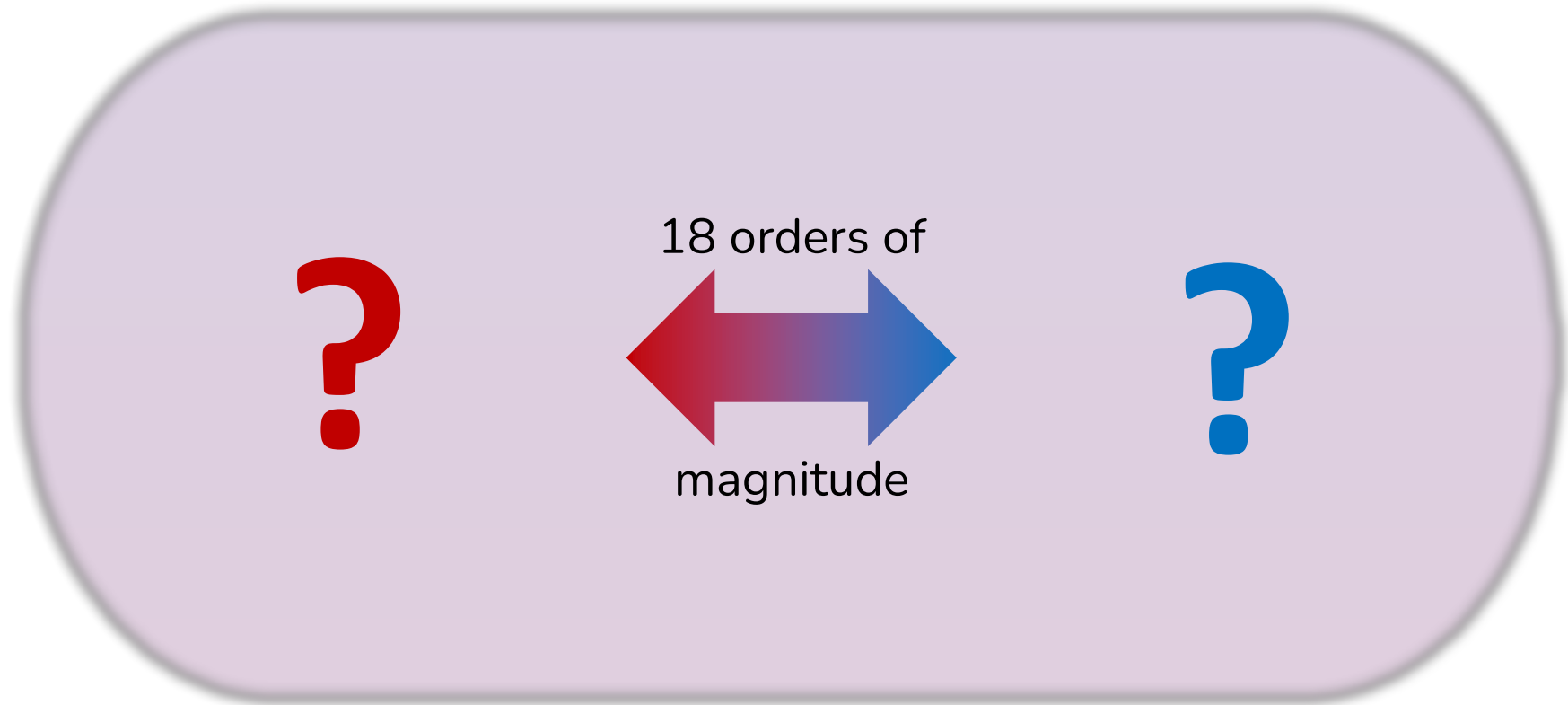
Nikita Kozyrev

Institute for Nuclear Physics, Johannes Gutenberg-University Mainz

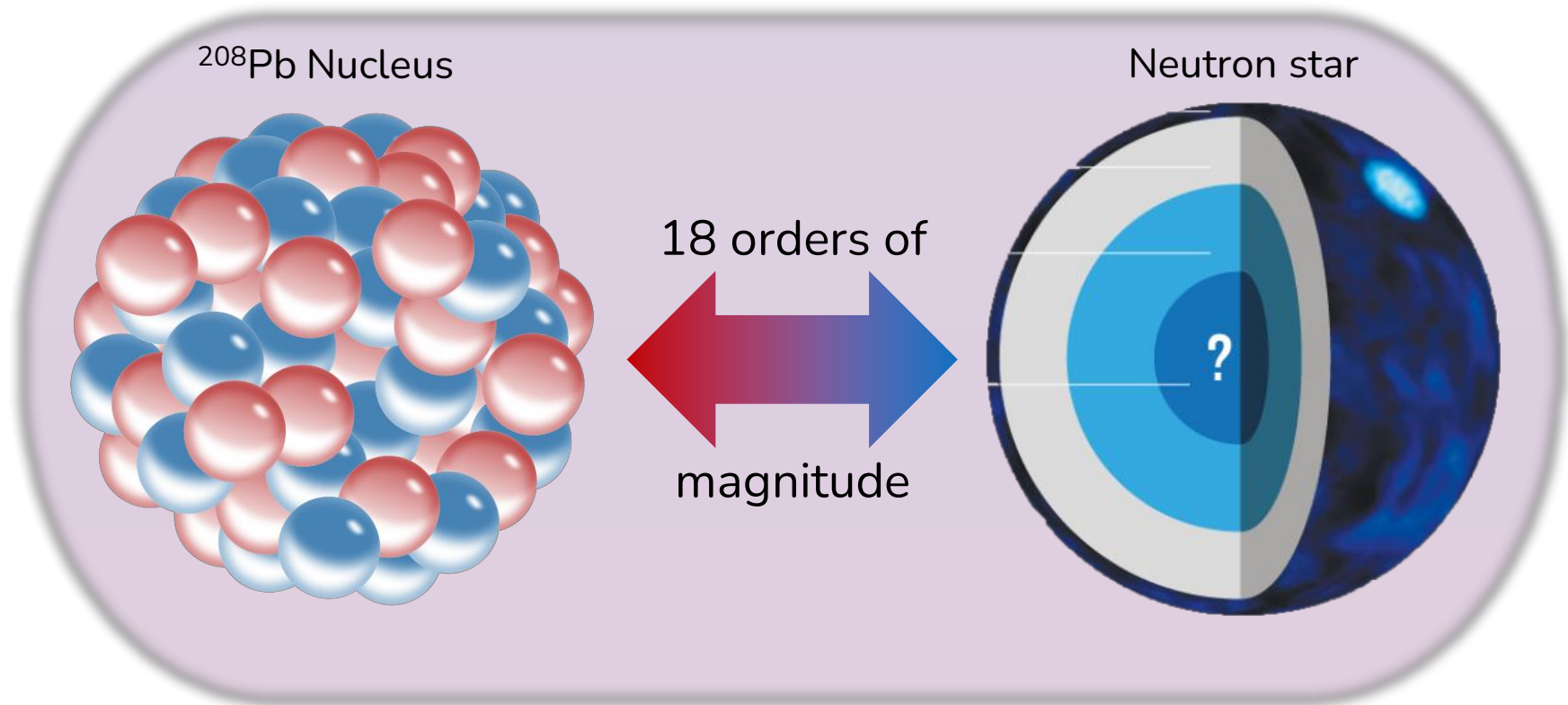
CRC 1660 Kick-Off



Connecting different scales



Connecting different scales



Neutron Skin and PREX-II

Nucleus

$$R_{skin} = R_n - R_p$$

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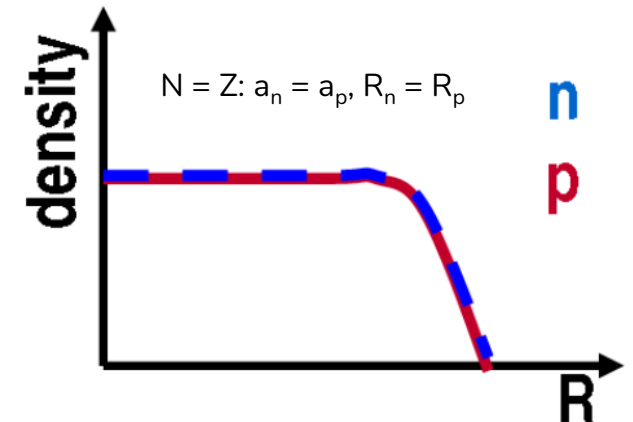
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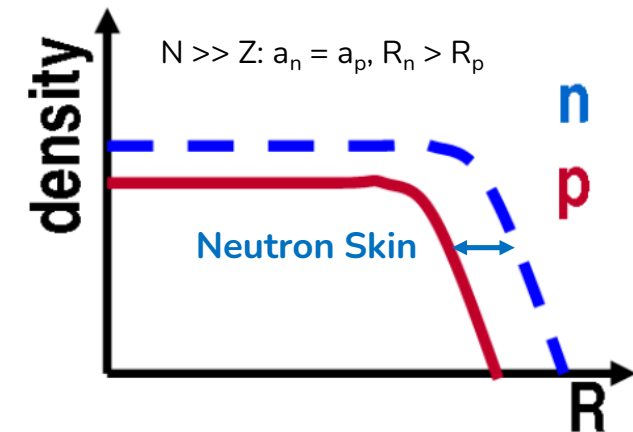
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J. Phys. G, **46** (2019), 093003



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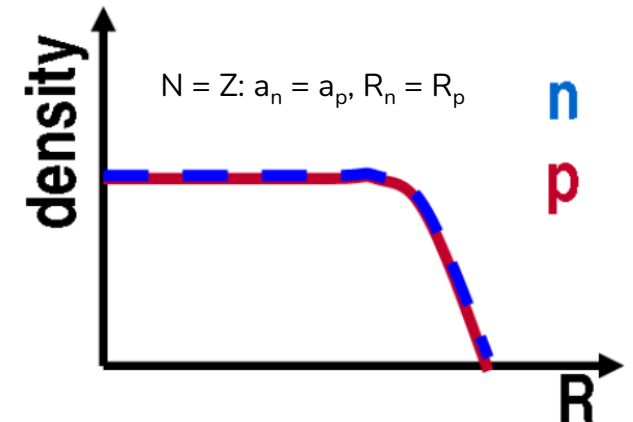
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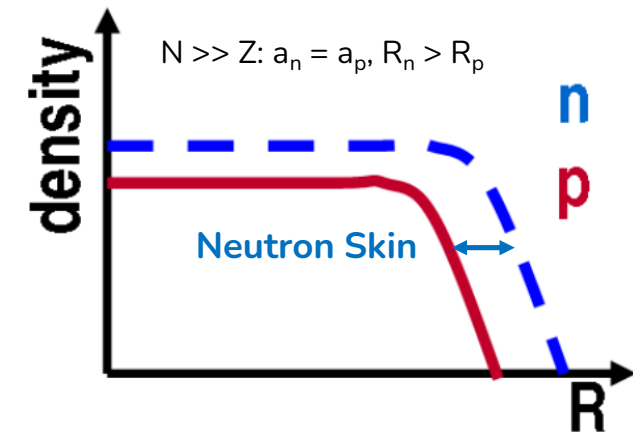
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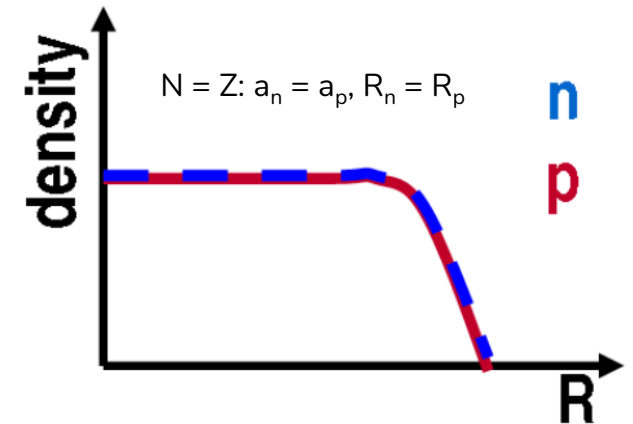
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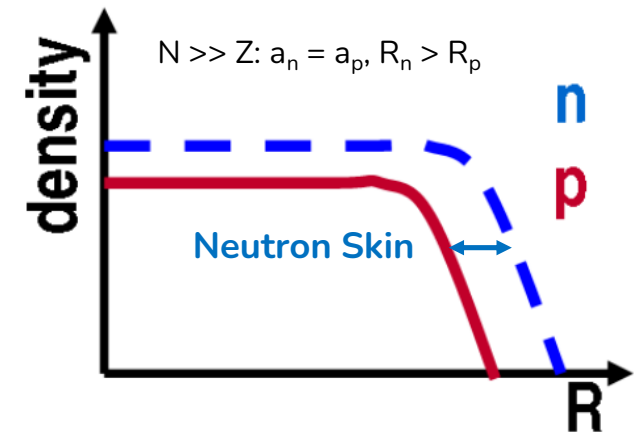
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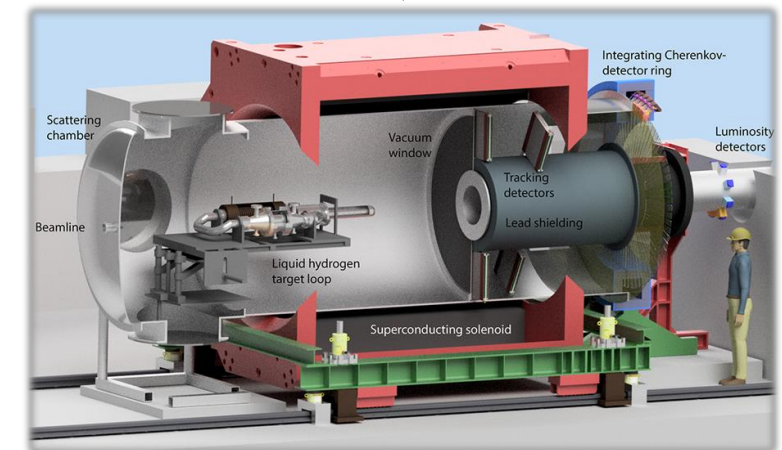
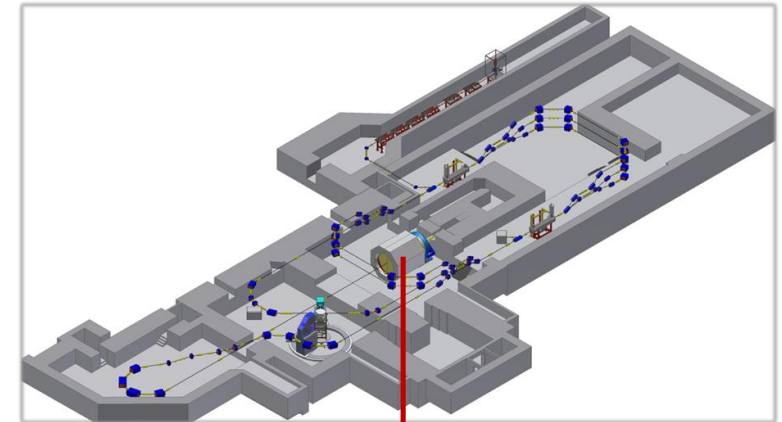


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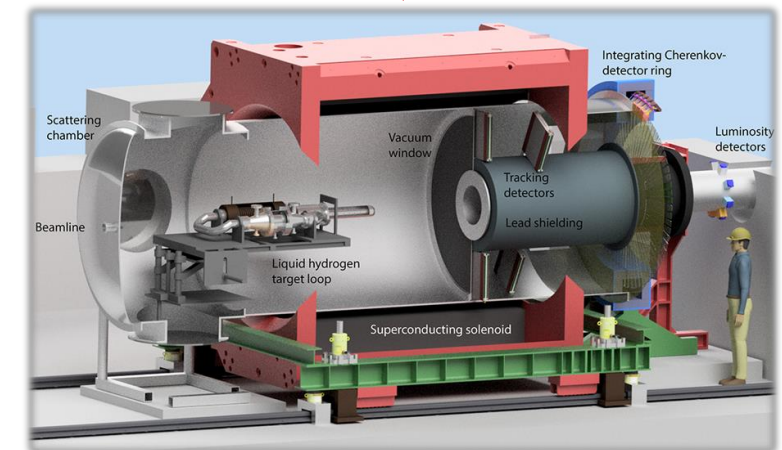
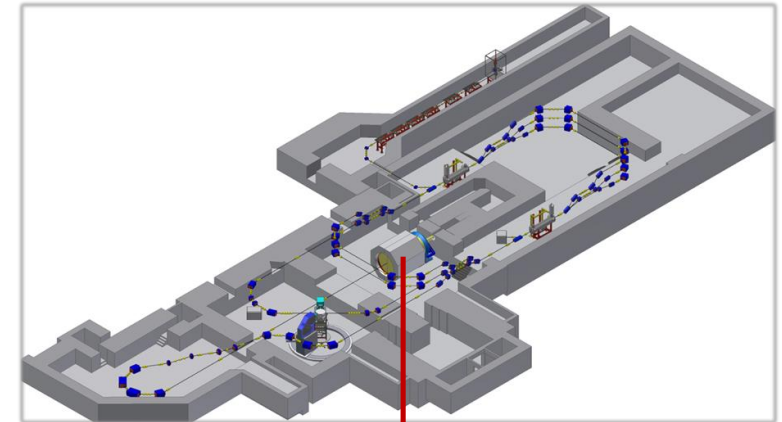
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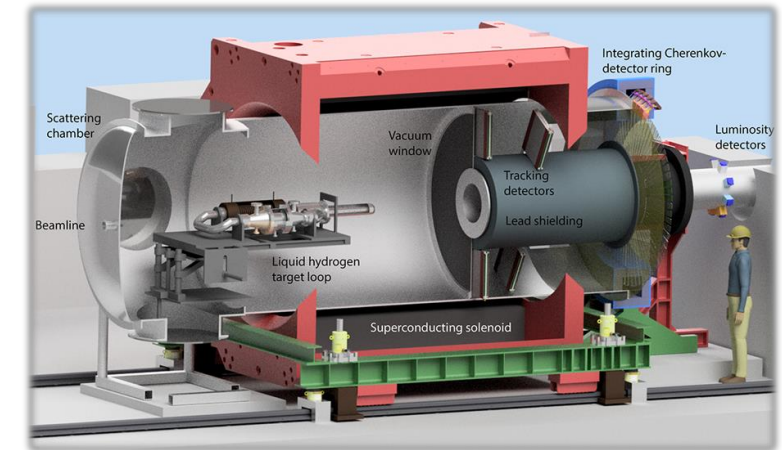
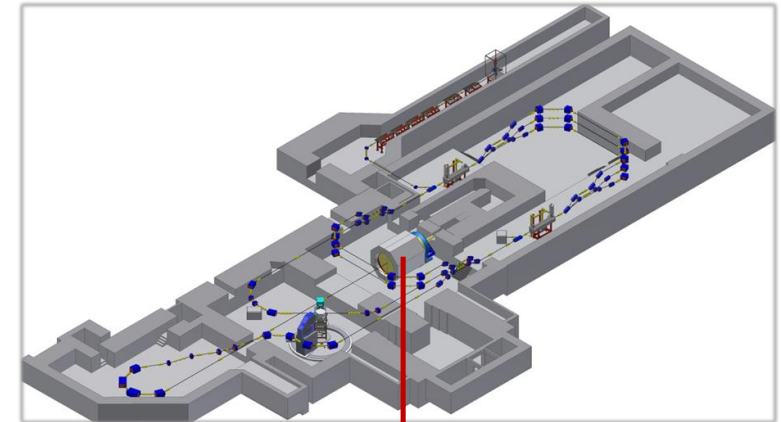
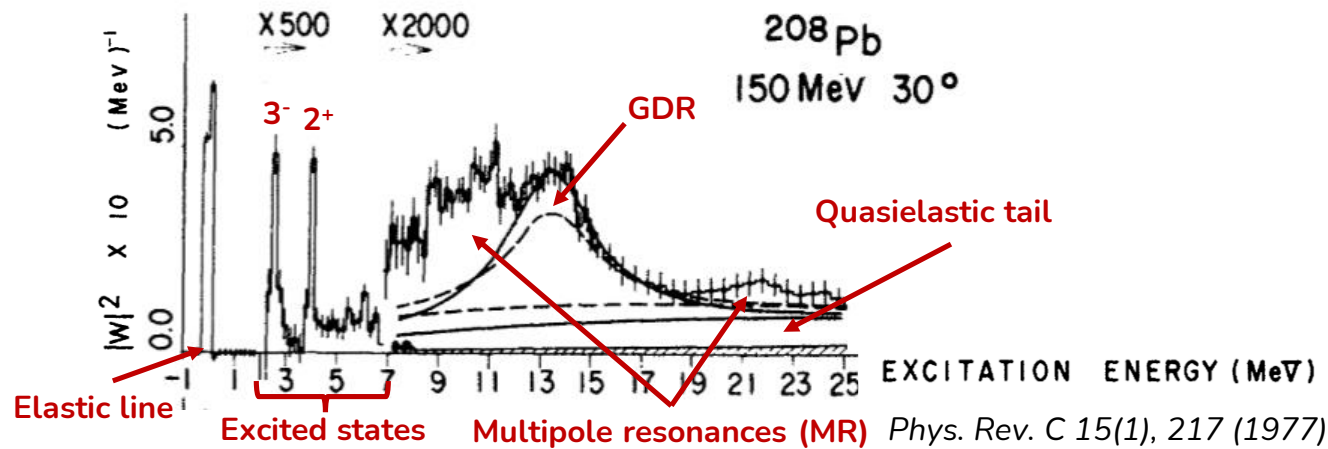


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Cluster of Excellence
PRISMA+
Precision Physics,
Fundamental Interactions
and Structure of Matter

MREX: The Mainz Radius EXperiment

Nikita Kozyrev
Institute for Nuclear Physics, Johannes Gutenberg-University Mainz



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ

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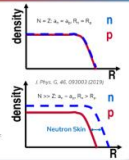
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Experimentally and theoretically determined R_{skin} in ^{208}Pb have had large systematic uncertainties. But precise study of NS is crucial for restricting the Nuclear Equation of State.



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Nuclear Equation of State (EOS) describes the density dependence of the nuclear energy per nucleon:

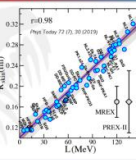
$$E(\rho, \alpha) = E_{\text{local}}(\rho) + \alpha S(\rho) + C(\rho)$$

where $\alpha = (N-Z)/A$ and $S(\rho)$ is the symmetry energy. Performing Taylor expansion around saturation density ρ_0 :

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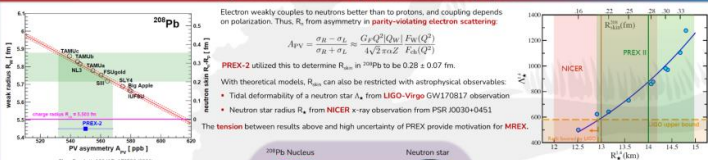
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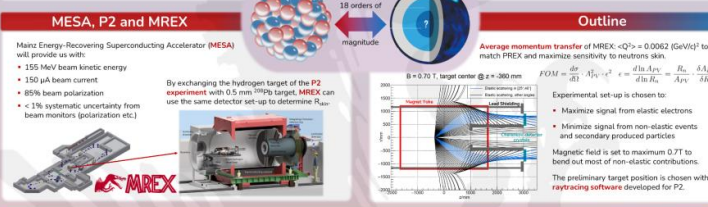
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Monte-Carlo simulation

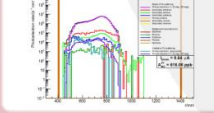
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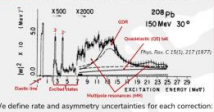
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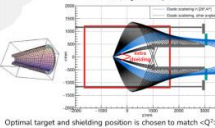
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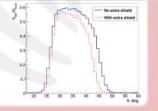
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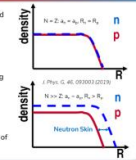
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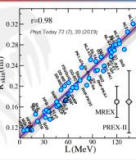
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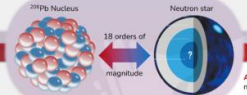
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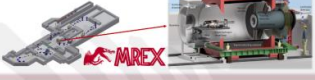


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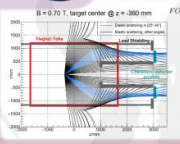
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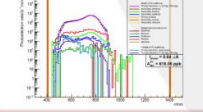
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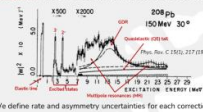
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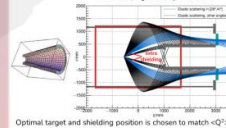
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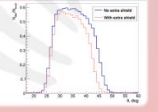
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