

Krakow Triple Telescope Array for experiments at GSI

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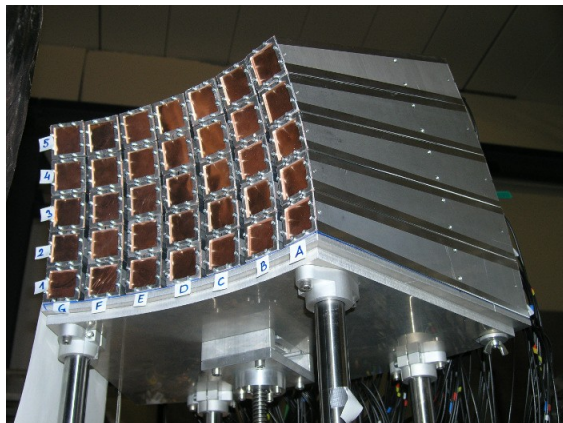


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INTERNATIONAL PHD PROJECTS IN APPLIED NUCLEAR PHYSICS AND INNOVATIVE TECHNOLOGIES

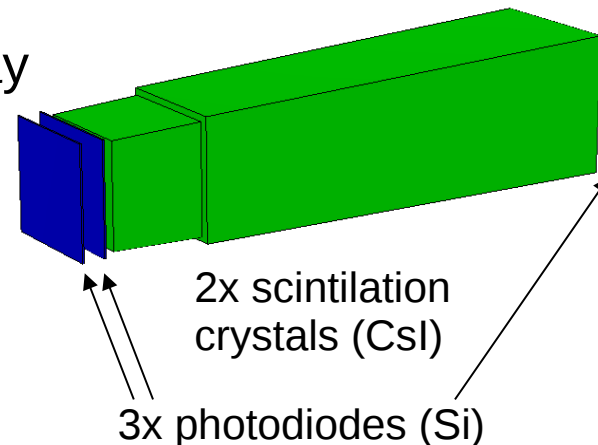
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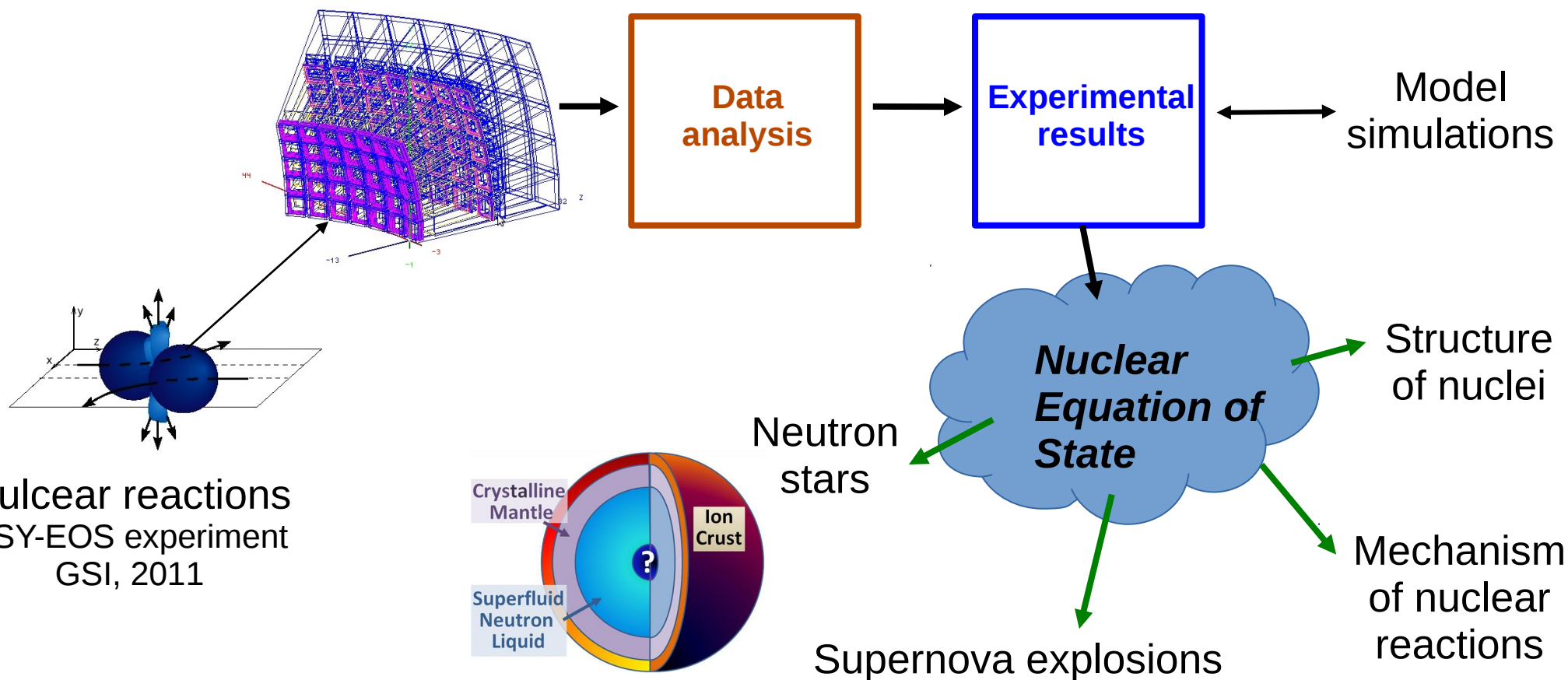
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KRAKow Triple Telescope Array

- Detection of light charged particles with isotopic resolution
- 35 telescope modules
- Broad energy range



Detection



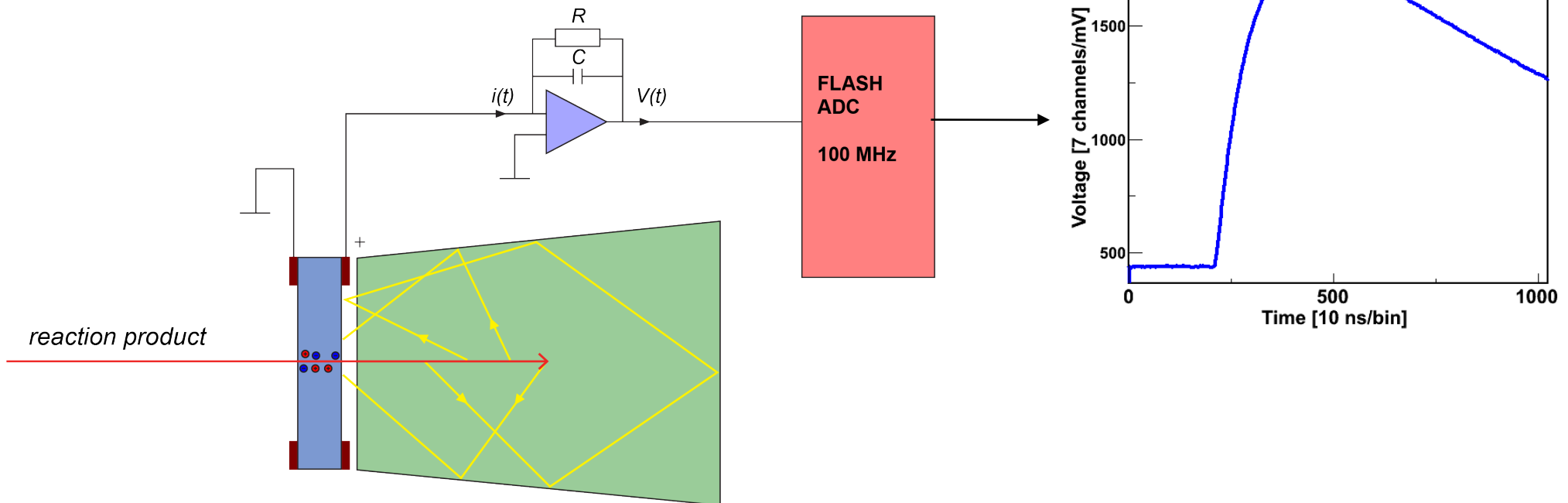
Nuclear reactions
ASY-EOS experiment
GSI, 2011

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Single Chip Telescope technology

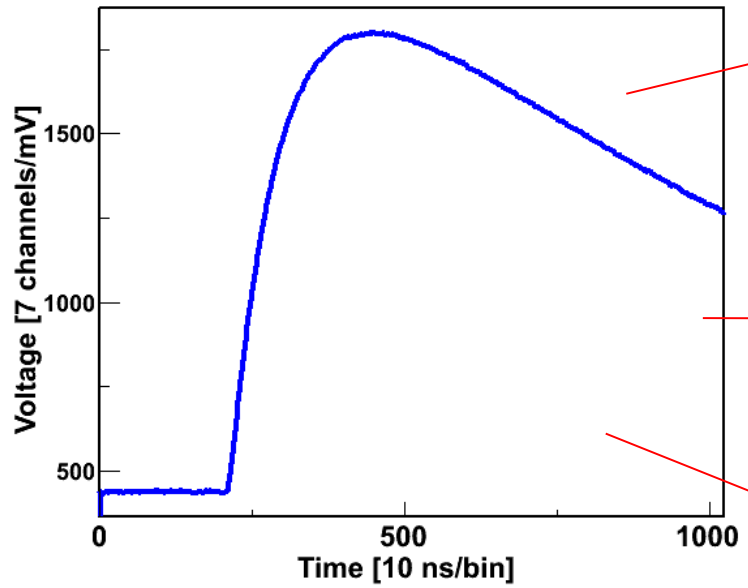


- Whole pulse shape registration
- Registered pulse shape is a sum of three components (ionization and two scintillation)

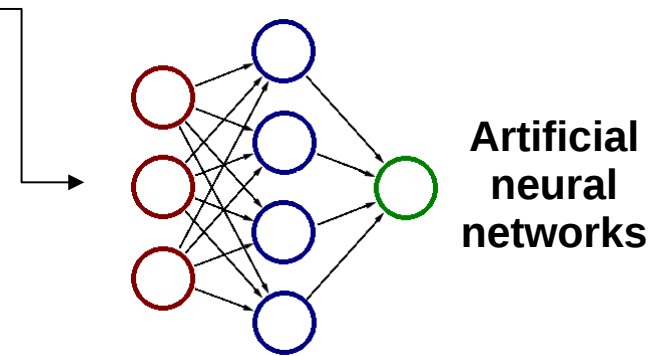
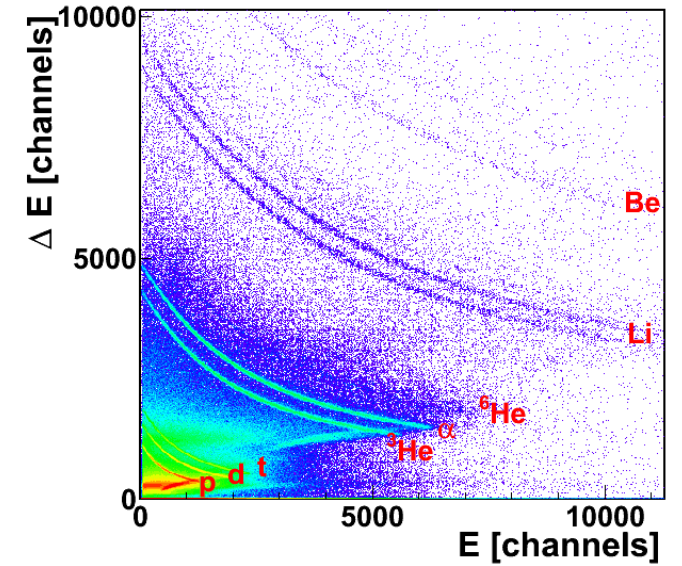
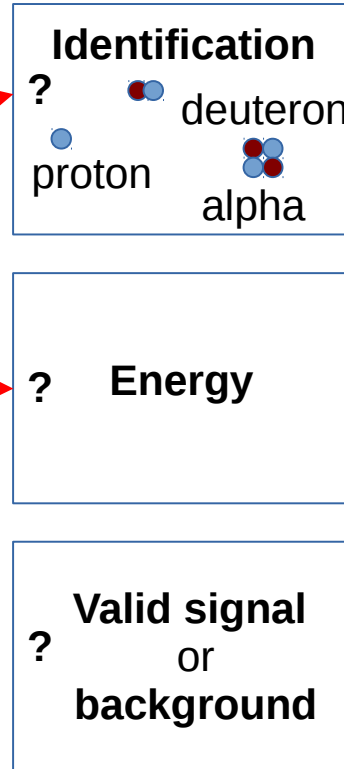


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Data analysis



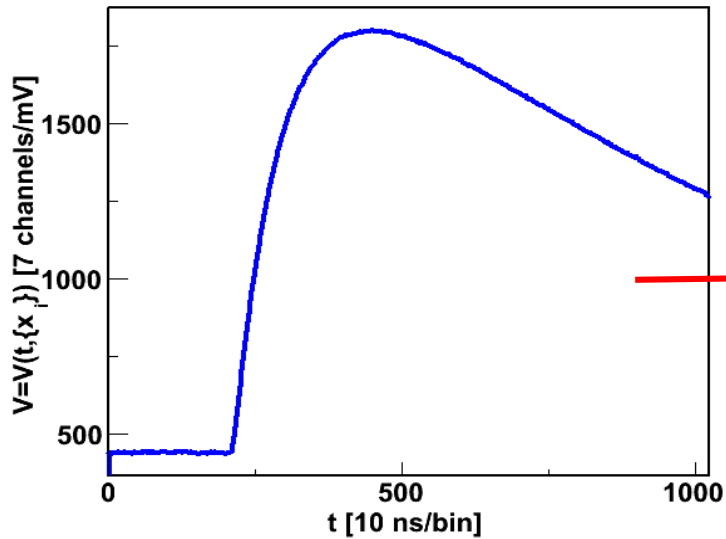
Pulse shape analysis



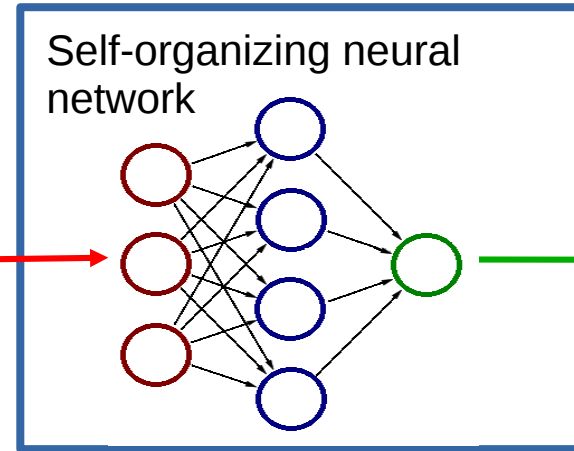
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Background reduction with artificial neural networks

Is a valid signal or background?

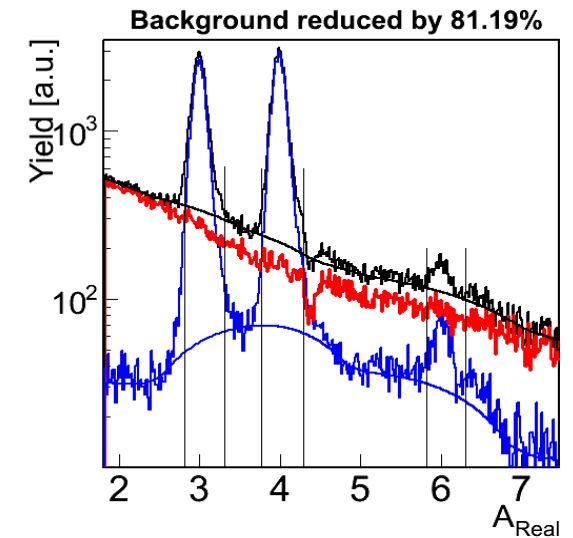
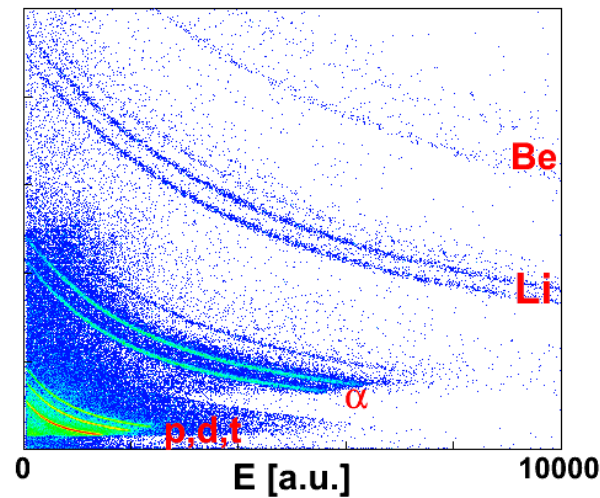
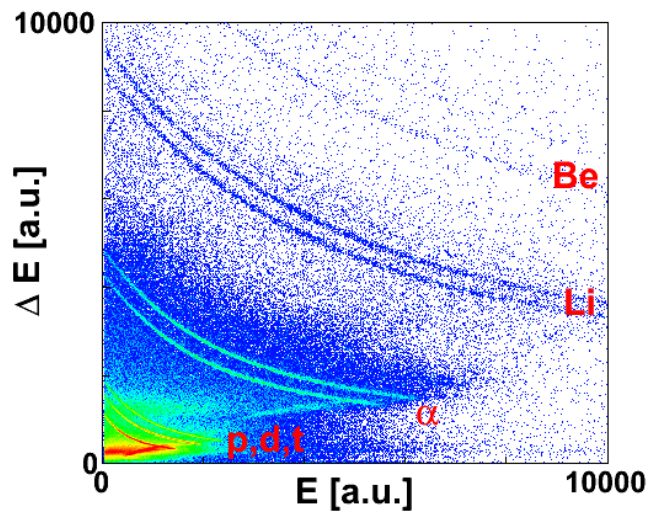


$\{x_i\}$



Yes / No

ΔE - E identification map before and after background reduction



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Summary

- ◆ A new modular system for detection of charged particles in a broad energy range has been built
- ◆ innovative SCT technology used
- ◆ designed and used for the purpose of the ASY-EOS experiment
- ◆ good detector performance
- ◆ provides unique data which allows to study the properties of the nuclear matter and to constrain the theoretical models

Thank you for attention

The ASY-EOS collaboration

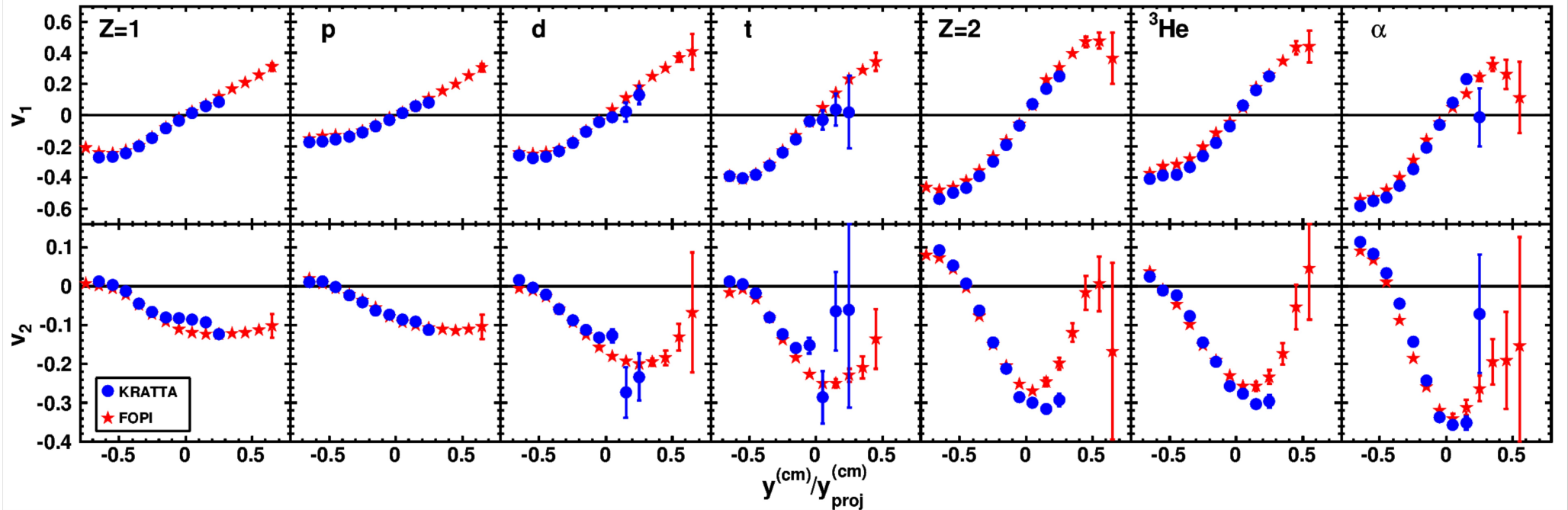
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Results

→ Light charged particle flow



→ Isotopic ratios of t/ ^3He

- KRATTA
- UrQMD:
 - SOFT Model 1
 - STIFF Model 1
 - ⋯ SOFT Model 2
 - ⋯ STIFF Model 2

