



Università degli Studi di Firenze
Dipartimento di Fisica e Astronomia

PhD Dissertation

Department of Physics and Astronomy (Aula Magna)
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Study of the Isospin transport phenomena in nuclear reaction with the FAZIA detector

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The investigation of heavy ion collisions is a fundamental tool to obtain information on the properties of nuclear matter far from normal conditions. The reactions in the Fermi energy regime (beam energies in the range 20-50 AMeV) are particularly interesting because they present a rich phenomenology, due to the interplay between mean field effects and nucleon nucleon collisions. The FAZIA collaboration [1] since almost ten years is aimed at the design and construction of a 4π -detector based on Si-Si-CsI telescopes with high performances in terms of identification thresholds [2] and isotopic resolution [3], in order to study isospin transport phenomena and symmetry energy term far from normal conditions [4, 5].

This seminar will report on the isotopic identification capability of the FAZIA detector as well as recent results concerning the average isospin of the quasi-projectile produced in semiperipheral collisions as a function of the isospin of the target.

- [1] FAZIA Collaboration, <http://fazia.in2p3.fr/>
- [2] G. Pastore et al., *Nucl. Instr. and Meth. A*, in press
DOI:<http://dx.doi.org/10.1016/j.nima.2017.01.048>
- [3] R. Bougault et al., *Eur. Phys. J. A*, 50 (2014) 47
- [4] S. Barlini et al., *Phys. Rev. C*, 87 (2013)
- [5] S. Piantelli et al., *Phys. Rev. C*, 88 (2013)



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