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Study of giant resonances in storage ring experiments with EXL

Inelastic scattering of exotic nuclei on an internal gas-jet target of a storage ring allows for a new access to study giant resonances, applicable also for radioactive nuclei. The differential excitation cross section can be measured down to very small scattering angles in the CM system with high angular resolution, making this approach particularly suited e.g. for the study of giant monopole resonances.

As proof of principle, the ISGMR in the stable nucleus ^{58}Ni [1] has been studied at the ESR of GSI (Darmstadt, Germany) using an early version of the EXL set-up [2].

The status of the EXL project and future plans at GSI/FAIR, e.g. the study of the ISGMR in ^{56}Ni , will be presented on behalf of the EXL collaboration.

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[1] J. C. Zamora et al., Phys. Lett. B 763, 16 (2016)

[2] M. Mutterer et al., Phys. Scr. T 166, 014053 (2015)

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