

## Multinucleon transfer and double charge-exchange reactions

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There is a renewed interest in single and double charge-exchange reactions due to its connection with the Fermi and Gamow-Teller transitions and double beta decay. It has given origin to different campaigns mainly at RCNP and RIKEN in Japan and at the LNS-INFN Catania in Italy. This last one is focused on the connection of double charge-exchange and the neutrinoless double-beta decay which would help to constrain the possibility of neutrinos to be Majorana particles and eventually the measurement of the mass of the neutrinos.

At the bombarding energies used at the LNS-INFN, different combinations of multinucleon transfer contributes to the final double charge cross section. These contributions are not present in the correspondent beta decay. However, this fact can be of help to further constrain the wavefunction of the nuclei involved since they can also be studied in terms of one and two nucleon transfer cross section which will be measured in the same experiment.

In this contribution, we will evaluate the total cross section for the double charge-exchange reactions  $^{116}\text{Cd}(^{20}\text{Ne},^{20}\text{O})^{116}\text{Sn}$  and  $^{40}\text{Ca}(^{18}\text{Ne},^{18}\text{O})^{40}\text{Ar}$  at 15 MeV/nucleon in order to compare with the preliminary experimental data. The double charge exchange will be evaluated as two sequential single charge-exchange processes in 2nd order DWBA. Multinucleon transfer will be added coherently. We will evaluate the possibility of obtaining a full description of the absolute cross section and non-orthogonality terms involved in the 3rd and 4th order DWBA calculations corresponding to the multinucleon transfer processes.

### Summary

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