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Deeply Virtual Compton Scattering off light nuclei: a phenomenological study

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The modification of the bound nucleons'parton structure induced by the nuclear medium, known as EMC effect, is still nowadays a hot topic. Exclusive scattering processes as deeply virtual Compton scattering (DVCS) are able to provide hints about the three-dimensional partonic structure of any hadronic system from a new point of view. Going beyond the collinear information coming from deep inelastic scattering experiments, the structure functions accessed in DVCS, the so called generalized parton distributions (GPDs), give access to the correlation between the spatial and the momentum degrees of freedom of the constituent partons.
Within this framework, the study of the hadronic structure of nuclei can be faced in two ways. In the coherent DVCS, the initial nucleus doesn't break up after the scattering with the incoming electron and the partonic structure of the whole nucleus can be entered; conversely, in the incoherent DVCS a bound nucleon is detected in the final state after the breaking up of the initial nucleus. The information coming from this latter channel can be compared with the ones well established for the free nucleon in order to shed light on some unknown aspects of the EMC effect.
In this talk, we will present phenomenological models able to describe the hadronic structure of nuclei within the GPD framework studying both DVCS channels. Light nuclei are the targets of our studies since realistic calculations accounting for phenomenological nucleon-nucleon potential and three-body forces can be made for these systems. This allows to properly describe the nuclear effects occurring in the hadronic structure of the targets.
While for the ^{4}He, the numerical results of our approach have already been compared with the Jefferson Lab experimental data (for both the channels) showing interesting results, for the deuteron, whose nuclear description is easier, first results from our model will be shown in this talk.
Finally, after a description of our theoretical approach a glimpse on the phenomenological application of these studies in view of the EIC will be caught.

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