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Studying the phi meson in nuclear matter by simulating low energy pA reactions

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The behavior of the ϕ meson in nuclear matter has attracted renewed interest because of (recent and future) experiments that aim to study its properties in nuclei [1-3]. Theoretically, many works have however been conducted assuming infinite nuclear matter [4-5], which is not realistic from an experimental point of view. To relate theoretical predictions with experimental observables, a thorough understanding of the actual reaction, in which the ϕ meson is produced in a nucleus, is required. For the past E325 experiment at KEK [1] and the future E16 experiment at J-PARC [3], this is a pA reaction with initial proton energies between 10 and 30 GeV. To simulate such a reaction, we make use of the PHSD transport approach, which is based on a covariant microscopic transport model [6]. In this framework, the ϕ meson spectral function obtained theoretically as a function of density, can be used as an input, while the output of the simulation can be compared with experimentally observed dilepton spectrum.
In this presentation, I will give an overview of first results obtained in simulations of the p-Cu reactions probed at the E325 experiment at KEK.

[1] R. Muto et al., Phys. Rev. Lett. 98, 042501 (2007).
[2] A. Polyanskiy et al., Phys. Lett. B 695, 74 (2011).
[3] K. Aoki (J-PARC E16 Collaboration), arXiv:1502.00703 [nucl-ex].
[4] P. Gubler and K. Ohtani, Phys. Rev. D 90, 094002 (2014).
[5] P. Gubler and W. Weise, Phys. Lett. B 751, 396 (2015).
[6] W. Cassing and E. Bratkovskaya, Phys. Rev. C 78, 034919 (2008).

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