Contribution ID: **97** Type: **not specified**

The phi meson in nuclear matter and the strangeness content of the nucleon

Tuesday, 26 July 2016 14:15 (35 minutes)

In this presentation, recent results about the behavior of the phi meson in nuclear matter will be presented [1,2,3]. Furthermore, the relation between the phi meson spectral function and QCD condensates, in particular the strange quark condensate, will be discussed. We find a strong correlation between a possible mass shift of the phi-meson in nuclear matter and the strangeness content of the nucleon, which is proportional to the strange sigma term, sigma_{sN}=m_s*<N|bar[s}s|N>. Depending on the value of sigma_{sN}, the phi-meson could moreover receive both a positive or negative mass shift at normal nuclear matter density. Our findings are relevant for the interpretation of the past E325 experiment at KEK and the future E16 experiment to be carried out at the J-PARC facility. [1] P. Gubler and K. Ohtani, Phys. Rev. D 90, 094002 (2014). [2] P. Gubler and W. Weise, Phys. Lett. B 751, 396 (2015). [3] P. Gubler and W. Weise, arXiv:1602.09126 [hep-ph], to be published in NPA.

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Session Classification: Meson-Nucleon Interactions