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The phi meson in nuclear matter with finite momentum: a study based on QCD sum rules and the maximum entropy method PHILIPP GUBLER, RIKEN, Nishina Center, KEISUKE OHTANI, Tokyo Institute of Technology — The behavior of the ϕ meson at finite density and finite momentum is studied, making use of a QCD sum rule approach in combination with the maximum entropy method. For the zero momentum case, it is demonstrated that, depending on the value of the strange sigma term $\sigma_{sN} = \langle N | \bar{s}s | N \rangle$, the ϕ meson could receive both a positive or negative mass shift at nuclear matter density. It will next be discussed how finite momentum effects could modify this behavior and whether they could have any consequences on physically measurable quantities. Our results are relevant for the E16 experiment to be performed at the J-PARC facility, where the behavior of the ϕ meson will be measured and which will hopefully provide precise information on the modification of the ϕ meson spectrum at finite density.

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