

Abstract Submitted
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Light scalar meson nonet at finite density MAKOTO TAKIZAWA, Showa Pharmaceutical University, MAKOTO OKA, Tokyo Institute of Technology, HIDEKO NAGAIHIRO, Research Center for Nuclear Physics (RCNP), Osaka University, SATORU HIRENZAKI, Nara Women's University — The observed mass spectrum of the light scalar meson nonet seems not to fit the pattern of the flavor $SU(3)$ if one assumes the simple quark-antiquark structure of the scalar mesons. Without introducing the multi-quark structure of the scalar mesons, this problem has partially been solved by the effect of the $U_A(1)$ breaking instanton induced interaction. About 150 MeV mass difference between the $f_0(600)$ and $a_0(980)$ has been obtained in the study of the three flavor version of the Nambu-Jona-Lasinio (NJL) model where the strength of the $U_A(1)$ breaking interaction is determined by the electromagnetic decays of the η meson. Since the low-lying scalar mesons are considered as the chiral partner of the Goldstone bosons (π, K, η), it is interesting to see how the properties of the light scalar meson nonet change at the finite density where the chiral symmetry is partially restored. We shall report the results of our study of the light scalar nonet at the finite density in the three-flavor NJL model.

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