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Gauge covariant approach to the electroweak interactions of spin-0 and spin-1 mesons

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An extended Nambu-Jona-Lasinio model with chiral group $U(2) \times U(2)$ and spin-0 and spin-1 four quark interactions is used to develop the gauge covariant approach to the diagonalization of the $\pi - a_1$ mixing in the presence of electroweak forces. This allows for manifestly gauge covariant description of both the non-anomalous and anomalous parts of the effective meson Lagrangian. It is shown that in the non-anomalous sector the theory is equivalent to the standard non-covariant approach. However, the theory differs from the standard one in the anomalous sector. Some straightforward applications are considered.

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