

## Applicability of Parametrized Form of Fully Dressed Quark Propagator

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**Abstract:** According to extensive study of the Dyson-Schwinger equations for a fully dressed quark propagator in the "rainbow" approximation with an effective gluon propagator, a parametrized fully dressed confining quark propagator is suggested in this paper. The parametrized quark propagator describes a confined quark propagation in hadron, and is analytic everywhere in complex  $p^2$ -plane and has no Lehmann representation. The vector and scalar self-energy functions  $[1-A_f(p^2)]$  and  $[B_f(p^2)-m_f]$ , dynamically running effective mass of quark  $M_f(p^2)$  and the structure of non-local quark vacuum condensates as well as local quark vacuum condensates are predicted by use of the parametrized quark propagator. The results are compatible with other theoretical calculations.

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Key words: quark propagator, Dyson--Schwinger equations, non-perturbative QCD

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