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A new method for computing the quark-gluon vertex

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In this talk we present a new method for determining the nonperturbative
quark-gluon vertex, which constitutes a crucial ingredient for a variety of theoretical and phenomenological studies. This new method relies heavily on the exact all-order relation connecting the conventional quark-gluon vertex with the corresponding vertex of the background field method, which is Abelian-like. The longitudinal part of this latter quantity is fixed using the standard gauge technique, whereas the transverse is estimated with the help of the so-called transverse Ward
identities. This method allows the approximate determination of the nonperturbative behavior of all twelve form factors comprising the quark-gluon vertex, for arbitrary values of the momenta. Numerical results will be presented for the form factors
in three special kinematical configurations (soft gluon and quark symmetric limit, zero quark momentum) and compared with the corresponding lattice data.

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