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Overlap Quark Propagator in Coulomb Gauge QCD

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The chirally symmetric Overlap quark propagator is explored for the first time in Coulomb gauge. This gauge is well suited for studying the relation between confinement and chiral symmetry breaking. The dressing functions of the quark propagator and the dynamical mass function are evaluated. Chiral symmetry is then artificially restored by removing the low eigenmodes from the Dirac operator. Its effect on the dressing functions is discussed. Via a quark dispersion relation it is shown that confinement is still intact after artificially restoring chiral symmetry.

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