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Lattice computation of the Landau gauge quark propagator at finite temperature

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We report on the computation of the quark propagator at finite temperature in the Landau gauge using quenched gauge configurations. The propagator form factors are computed for various temperatures, above and below the gluon deconfinement temperature T_c , and for all the Matsubara frequencies. Significant differences are found between the form factors below and above T_c , which suggest a strong connection between gluon dynamics, the mechanism for chiral symmetry breaking and the deconfinement mechanism. For temperatures above T_c and for low momenta, our results support also a description of quarks as free quasi-particles. We also report preliminary results concerning the behaviour of the quark propagator in different Z_3 sectors of the $SU(3)$ gauge group.

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