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# The center-symmetric Landau gauge meets the lattice

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We present a lattice implementation of the recently introduced center-symmetric Landau gauge and show that center symmetry imposes constraints on the gauge-link correlators in that gauge. In particular, we obtain constraints on the local one-link average and on the two-point link correlator which mirror those obtained in the continuum for the gauge-field one- and two-point functions. Then, although link correlators or the associated gauge-field correlators cannot be measured experimentally, they can be used on the theory side as order parameters for the confinement/deconfinement transition. Strictly speaking, this requires the Gribov copies that are present in the center-symmetric Landau gauge to be chosen in specific ways. We discuss to which extent this is realized, at least approximately, in the lattice implementation of the gauge fixing. We also compare this discussion to a similar one within the standard Landau gauge and argue why, in this latter case, link correlators or the associated gauge-field correlators are not good probes for center symmetry breaking.

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