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Infrared dynamics of the three and four-gluon vertices

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In this talk, we present recent results on the transversely-projected three- and four-gluon vertices. Our approach is based on the one-loop dressed Schwinger-Dyson equations derived from the nPI effective action. The key hypothesis in both cases is the planar degeneracy property of these vertices, which becomes apparent when the Bose symmetry of the vertices are properly exploited. The planar degeneracy enables a particularly simple parametrization of the vertices, reducing their kinematic dependence to essentially a single variable. The primary outcome of these considerations is a highly compact description of the both vertices, which can significantly simplify the nonperturbative applications involving them. In addition, our results reveal a considerable suppression relative to their tree-level counterparts, and show excellent agreement with available lattice simulations.

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