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Helicity-dependent generalization of the McLerran-Venugopalan model FLORIAN COUGOULIC, YURI KOVCHEGOV, Ohio State Univ - Columbus — The small-x evolution equation for the quark and gluon helicity distribution have been recently written in the framework of the Jalilian-Marian-Iancu-McLerran-Weigert-Leonidov-Kovner (JIMWLK) functional evolution equation. Those equations will be useful for numerical evaluation in order to estimate the asymptotic behaviors beyond previously known result in the large Nc-limit. This will give us some new insight of the small-x dependence of those distributions in the hope of better understanding the proton spin puzzle. In order to solve those equations, it is necessary to provide an initial condition for the target weight functional. For the JIMWLK (unpolarized) case, this initial condition is usually given by the McLerran-Venugopalan (MV) model. However, the MV-model does not describe helicity-dependent fields. We derive a generalization of the MV-model by including helicity-dependent fields which are subeikonal compared to the usual eikonal background field of the MV-model. The subeikonal fields are generated by diagonal and non-diagonal (in color and flavor spaces) source operators acting on the nucleus state, and the sources distributions are found to be Gaussian, as in the MV-model.

Florian Cougoulic
Ohio State Univ - Columbus

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