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Current status of nPDFs and prospects for pO and OO collisions

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The global analyses of nuclear parton distribution functions (nPDFs) are going through a phase of rapid development, driven mainly by new constraints from the CERN LHC proton–lead program, and attracting also new groups to join the field. In this talk, I will review the current status of nPDF global analyses. I will concentrate on the opportunities with lighter-ion runs at the LHC and in particular on the prospects of the proposed proton–oxygen (pO) and oxygen–oxygen (OO) collisions in constraining the mass-number dependence of the nPDFs. As a case study, I will present predictions for dijet production at pO, which has a sizable cross section at the 9.9 TeV collision energy and can thus be expected to give constraints for gluon nuclear modifications even at relatively low luminosities.

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