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J/psi pair production in pion-nucleon collisions at COMPASS

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During the past 40 years, the production of pairs of the J/psi mesons in high energy hadron collisions has been studied by several experiments. Despite the experimental and theoretical efforts, the origin of the process and the relative weight of different production mechanisms still remain unknown. Depending on the energy scale the double J/psi production can be described by single- and double-parton scattering sub-processes and gluon-gluon fusion or quark-antiquark annihilation mechanisms. The process can also be related to the hypothesis of the intrinsic charm of hadrons and the existence of exotic tetraquark states which were predicted by various theoretical models and have recently been observed by the LHCb experiment.
To study dimuon reactions the COMPASS experiment at CERN uses a 190 GeV/c negative pion beam impinging on different nuclear targets. In this talk, the first preliminary COMPASS results on J/psi pair production will be presented. The search for possible signals from exotic resonances and the study of double J/\psi production mechanisms will be discussed.

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