Abstract Submitted
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3pi resonance poles from COMPASS data MIKHAIL MIKHASENKO, Univ Bonn, ANDREW JACKURA, University of Indiana, ADAM SZCZEPANIAK, University of Indiana, JLab, BERNHARD KETZER, Univ Bonn, JPAC COLLABORATION, COMPASS COLLABORATION — High-energy peripheral reactions provide an excellent opportunity to study the excitation spectrum of hadrons. The COMPASS experiment at CERN has measured the diffractive scattering of pions to the 3-pion final state with unprecedented statistical precision. Partial wave analysis technique has been employed to obtain an expansion of the reaction cross section in terms of partial waves with quantum numbers $J^{PC}\, M^{\varepsilon}$, which is differential in the 3π invariant mass and the squared transverse momentum. The aim of our analysis is the interpretation of the mass-dependence of the spin-density matrix in terms of short- and long-range interactions using analyticity and unitarity constraints. Using the K-matrix approach, we build the amplitude for scattering of a quasi-two-body final state ($\pi\pi$-subchannnel resonance + pion), and include a unitarization procedure to incorporate non-resonant long-range production processes via pion exchange. The talk is focused on a demonstration of the approach on the 2^{-+} sector of COMPASS data. A global fit over 3π invariant mass up to 2.2 GeV and $0.1\,\mathrm{GeV}^2 < t' < 1\,\mathrm{GeV}^2$ is performed. We explore a presence and positions of poles and discuss the long standing puzzle about $\pi_2(1670) - \pi_2(1880)$ interplay.

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