Contribution ID: **33** Type: **Talk in workshop 1 "Non-perturbative approaches for hadron structure from low to high energy"**

Dispersive analysis of two photon reactions

Tuesday 28 October 2025 16:15 (25 minutes)

We perform a coupled-channel dispersive analysis of $^{(*)(*)} \to \pi\pi/\pi\eta/K\bar{K}$ using a modified Muskhelishvili–Omnès framework that enforces analyticity and unitarity, modeling the left-hand cut with pion/kaon and vector-meson pole terms. Both unsubtracted and subtracted forms are studied, the latter incorporating Adler-zero constraints. The S-wave $\pi\pi/K\bar{K}_{I=0}$ and $\pi\eta/K\bar{K}_{I=1}$ channels describe the $f_0(500)$, $f_0(980)$, and $a_0(980)$, while the D-wave is anchored by the $f_2(1270)$ and $a_2(1320)$ resonances. As an application to $(g-2)_\mu$, we obtain dispersive HLbL rescattering estimates from scalar channels with improved precision over narrow-width models. A new two-photon Monte Carlo generator in development at Mainz will also be briefly presented.

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Session Classification: Parallel Workshop 1