

# A broad review of phenomenology of gamma-gamma interaction

*Monday, 29 June 2026 09:00 (30 minutes)*

Photon-photon interactions provide a clean probe of hadron structure, resonance dynamics, and precision QCD observables. In my talk, I will give a broad overview of the phenomenology of real and virtual two-photon processes, with emphasis on recent progress based on analyticity, unitarity, and dispersion relations. I will discuss dispersive descriptions of  $\gamma^{(*)}\gamma^{(*)} \rightarrow \pi\pi/K\bar{K}$  and  $\gamma^{(*)}\gamma^{(*)} \rightarrow \pi\eta/K\bar{K}$ , the emergence of scalar and tensor resonances, and the connection to pion polarizabilities and hadronic light-by-light scattering in the muon  $g - 2$ . I will also comment on our recent applications to virtual Compton scattering off the proton, where two-photon dynamics enters as input to the t-channel dispersion integrals, and on related applications to  $\phi \rightarrow \pi^0\pi^0\gamma$ , as well as on Monte Carlo tools for two-photon production at  $e^+e^-$  facilities.

## Collaboration

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**Session Classification:** Plenary session

**Track Classification:** Tests of fundamental symmetries and precision experiments