



Contribution ID: 42

Type: **Talk**

Pseudoscalar pole contribution to the hadronic light-by-light piece of a_μ

Thursday 2 August 2018 15:00 (20 minutes)

We studied the transition form factor involved in pseudoscalar meson (π, η, η') decays into two virtual photons by means of a chiral-invariant Lagrangian, considering the lowest-lying multiplet of vector and pseudoscalar resonances. Accounting for $U(3)$ breaking effects, we give the most general corrections of order m_P^2 to the form factor. Most parameters are fixed requiring short-distance constraints. The remaining ones are fitted to experimental measurements of the form factors in the space-like ($q^2 < 0$) region of photon momenta. We, thus, obtain the P-pole contribution to the hadronic light-by-light scattering of the muon $g-2$ with an improved certainty: $(8.47 \pm 0.16) \times 10^{-10}$. This is obtained neglecting BaBar data for the π^0 Transition Form Factor which, in our analysis, is in conflict with the remaining experimental inputs.

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Session Classification: Light quarks

Track Classification: B: Light quarks