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Pseudoscalar transition form factors and the hadronic light-by-light contribution to the muon $g - 2$

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We present the first ab-initio calculation of the π^0 , η and η' transition form factors at the physical point using lattice QCD with staggered fermions on $N_f = 2+1+1$ gauge ensembles, generated by the Budapest-Marseille-Wuppertal collaboration. We compare our results with existing measurements and with other theoretical estimates. Using these transition form factors, we compute the pseudoscalar-pole contribution to the hadronic light-by-light scattering in the muon $g - 2$ with a precision well below 10%, as needed for future experimental precision.

Topical area

Particle Physics Beyond the Standard Model

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