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## Electromagnetic transition form factor and radiative corrections in decays of neutral pions

*Monday 29 August 2016 19:30 (20 minutes)*

In this talk we present the Two-hadron saturation (THS) scenario for the PVV correlator and apply it to two important processes of the low energy hadron physics: the Dalitz decay of  $\pi^0$  and  $\pi^0 \rightarrow e^+e^-$ . We briefly summarize experimental and theoretical results on the rare decay  $\pi^0 \rightarrow e^+e^-$ . The notorious  $3.3\sigma$  discrepancy between the SM prediction and the experimental value provided by KTeV collaboration is discussed in the view of a complete set of NLO QED radiative corrections. The important contribution of analytical two-loop QED corrections together with the bremsstrahlung contribution beyond the soft-photon approximation are reviewed. Using the leading logarithm approximation, the possible contribution of QCD corrections is estimated. The discrepancy under discussion then reduces down to  $1.8\sigma$ . The obtained results can be also used in a theoretical calculation of the hadronic light-by-light scattering contribution to the  $g-2$  type experiments.

### Summary

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