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**Departamentos de Física Teórica I y II**  
**Universidad Complutense de Madrid**

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**TITULO:** "Pion-photon transition form factor using light-cone sum rules"

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**ABSTRACT**

A global fit to the data from different collaborations (CELLO, CLEO, BaBar) on the pion-photon transition form factor is carried out using light-cone sum rules. The analysis includes the next-to-leading QCD radiative corrections and the twist-four contributions, while the main next-to-next-to-leading term and the twist-six contribution are taken into account in the form of theoretical uncertainties. We use the information extracted from the data to investigate the pivotal characteristics of the pion distribution amplitude. This is done by dividing the data into two sets: one containing all data up to  $9\sqrt{\text{GeV}}^2$ , whereas the other incorporates also the high- $Q^2$  tail of the BaBar data. We find that it is not possible to accommodate into the fit these BaBar data points with the same accuracy and conclude that it is difficult to explain these data in the standard scheme of QCD.