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## A pion decay constant in the multi-flavor Schwinger model

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The pion decay constant  $F_\pi$  plays an important role in QCD and in Chiral Perturbation Theory. It is hardly known, however, that a corresponding constant exists in the Schwinger model with  $N_f \geq 2$  degenerate fermion flavors. In this case, the “pion” does not decay and  $F_\pi$  is dimensionless. Still,  $F_\pi$  can be defined by 2d analogies to the Gell-Mann–Oakes–Renner relation, the residual “pion” mass in the  $\delta$ -regime and the Witten-Veneziano formula. With suitable assumptions, simulation data inserted in these three QCD-inspired relations are all compatible with  $F_\pi \simeq 1/\sqrt{2\pi}$  at zero fermion mass, and  $N_f = 2, \dots, 6$ . Therefore this constant seems to be meaningful in the Schwinger model.

### Topical area

Theoretical Developments

**Primary authors:** Dr HIP, Ivan (University of Zagreb); NIETO CASTELLANOS, Jaime Fabián (Nuclear Sciences Institute, UNAM); Dr BIETENHOLZ, Wolfgang (Nuclear Sciences Institute, UNAM)

**Presenter:** NIETO CASTELLANOS, Jaime Fabián (Nuclear Sciences Institute, UNAM)

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