Matteo Giordano: Dirac spectrum in the chirally symmetric phase of QCD and the fate of U(1)_A symmetry

I discuss chiral symmetry restoration in the two-flavour chiral limit of QCD, focussing on its consequences for scalar and pseudoscalar susceptibilities, and on the resulting constraints on the Dirac spectrum. I show that for U(1)_A symmetry to remain broken in the SU(2)_A symmetric phase, the near-zero spectrum must develop a singular spectral density and singular eigenvalue correlations, both related to the topological properties of gauge configurations, and argue that this possibility is physically viable.