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B10: The chiral phase transition from strong to weak coupling

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The order of the chiral phase transition of lattice QCD with staggered fermions is known to depend on the quark masses, the number of flavours and the lattice spacing. Studies in the literature show a weakening of the $N_f = 3, 4$ first-order transitions with decreasing lattice spacing. Here we investigate what happens when lattices are made coarser, in order to establish contact to the strong coupling region. For $N_f = 4$ we find a drastic weakening of the transition when going from $N_t = 4$ to $N_t = 2$, consistent with a second-order chiral transition expected in the strong coupling limit.

Primary author: D'AMBROSIO, Alfredo (Goethe Universität)

Co-authors: CUTERI, Francesca (Goethe Universität); Prof. PHILIPSEN, Owe (Goethe University Frankfurt); Dr SCIARRA, Alessandro (Goethe Universität)

Presenter: D'AMBROSIO, Alfredo (Goethe Universität)

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