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## Dynamic critical behavior of the $O(4)$ chiral transition

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Evidence suggest that in the chiral limit, the QCD phase transition becomes a second order phase-transition in the  $O(4)$  universality class. Since real world QCD is not too far from the chiral limit, it is thus interesting to explore the consequences for static and dynamic correlation functions. Since, in the vicinity of the critical point, the physics is governed by universal scaling exponents and scaling functions, we can exploit this universality to address this question.

We employ classical-statistical real-time simulations to extract the dynamic critical behavior of an  $O(4)$  linear sigma model in the static and dynamic universality class of QCD in the chiral limit. By comparing results for the dynamics with and without a conversed energy and  $O(4)$  charges, we can realize the Model A and Model G dynamic universality classes in the classification scheme of Halperin and Hohenberg, for which we compute the dynamic critical exponent  $z$  of and further extract the relevant dynamic scaling functions for the spectral function of the order parameter.

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