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Study of the Theta Angle in Scalar QED_2 in a Dual Representation

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We study the effect of the theta angle in two dimensional scalar QED. Since the theta term is purely imaginary, it introduces a complex action problem which prevents conventional numerical simulations at non-zero values of theta. This problem is solved by mapping the model to a dual representation, which is real and non-negative, hence suitable for Monte Carlo simulations. We present technical aspects of the reformulation as well as physical results concerning, e.g., the topological charge.

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