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Lattice Hamiltonian approach to the Schwinger model

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We employ exact diagonalization with strong coupling expansion to the massless and massive Schwinger model. For the massless case, this allows us for a high accuracy continuum limit estimation of the ground state energy and scalar and vector mass gaps with precisions of the order of one part per billion or better. Furthermore, we investigate the chiral condensate and compare our calculations to previous results available in the literature. Oscillations of the chiral condensate which are present while increasing the expansion order are also studied and are shown to be directly linked to the presence of flux loops in the system.

Primary authors: Dr KUJAWA-CICHY, Agnieszka (Goethe-Universitaet); Dr CICHY, Krzysztof (DESY Zeuthen); Mr SZYNISZEWSKI, Marcin (Lancaster University, The University of Manchester)

Presenter: Mr SZYNISZEWSKI, Marcin (Lancaster University, The University of Manchester)

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