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Aspects of dynamical supersymmetry breaking and its mediation on magnetized tori

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We show some aspects of dynamical supersymmetry breaking (DSB) in super-Yang-Mills (SYM) theories in higher-dimensional space-time compactified on magnetized tori. The profile of background magnetic fluxes and Wilson-lines determines the breaking pattern of gauge symmetries as well as the number (degeneracy) of matter zero-modes in each representation under the remaining symmetries, with which the running of gauge couplings can be traced below the compactification scale. We search flux configurations which induce certain zero-mode spectra including those required for DSB in the four-dimensional effective SYM theories, and identify possible messengers mediating the breaking effects to visible sectors.

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