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**Magnetized orbifolds and localized flux.** (English) Zbl 1415.81041  
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Summary: Magnetized orbifolds play an important role in compactifications of string theories and higher-dimensional field theories to four dimensions. Magnetic flux leads to chiral fermions, it can be a source of supersymmetry breaking and it is an important ingredient of moduli stabilization. Flux quantization on orbifolds is subtle due to the orbifold singularities. Generically, Wilson line integrals around these singularities are non-trivial, which can be interpreted as localized flux. As a consequence, flux densities on orbifolds can take the same values as on tori. We determine the transition functions for the flux vector bundle on the orbifold  $T^2/\mathbb{Z}_2$  and the related twisted boundary conditions of zero-mode wave functions. We also construct “untwisted” zero-mode functions that are obtained for singular vector fields related to the Green’s function on a torus, and we discuss the connection between zeros of the wave functions and localized flux. Twisted and untwisted zero-mode functions are related by a singular gauge transformation.

**MSC:**

**81T13** Yang-Mills and other gauge theories in quantum field theory  
**83E15** Kaluza-Klein and other higher-dimensional theories  
**81T30** String and superstring theories; other extended objects (e.g., branes) in quantum field theory

Cited in **2** Documents

**Keywords:**

flux compactifications; higher dimensional gauge theories; orbifolds

**Full Text:** [DOI](#)

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