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Wavefunctions on S^2 with flux and branes. (English) Zbl 1418.83053

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Summary: We formulate a six dimensional U(1) gauge theory compactified on a (two dimensional) sphere S^2 with flux and localized brane sources. Profiles of the lowest Kaluza-Klein (KK) wavefunctions and their masses are derived analytically. In contrast to ordinary sphere compactifications, the above setup can lead to the degeneracy of and the sharp localizations of the linearly independent lowest KK modes, depending on the number of branes and their tensions. Moreover, it can naturally accommodate CP violation in Yukawa interactions.

MSC:

83E15 Kaluza-Klein and other higher-dimensional theories

81T30 String and superstring theories; other extended objects (e.g., branes) in quantum field theory

Keywords:

field theories in higher dimensions; beyond standard model; CP violation

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