

**Surface states in a square lattice
under magnetic field applied in the surface region**

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Electronic surface states localized on the edge of a semi-infinite square lattice are studied in the tight binding approximation (TBA). We have examined the existence of surface states in the presence of magnetic field applied in the surface region of a 2D lattice. The applied field is perpendicular to the lattice and confined to a stripe near the surface. We have also included a surface site perturbation caused by the presence of the surface. The magnetic field is introduced into the model by the Peierls substitution. The method is used for investigating surface states with commensurate ratio of the magnetic flux per unit cell to the flux quantum.

9.7 cm

← 13.4 cm →

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