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Study of the dissipative Hofstadter model in the π -flux regime

EDUARDO NOVAIS, Duke University, ANTONIO CASTRO NETO, FRANCISCO GUINEA, Boston University — A generalization of the Caldeira-Leggett model, which describes a particle in a periodic potential and under an applied magnetic field, the Dissipative Hofstadter model, is analyzed. We build upon previous work⁽¹⁾, and study special points where the model is exactly soluble. Our solution describes a fixed point where the particle is neither fully localized nor completely free. In order to obtain the solution, we map the partition function of the DHM to the partition function onto that of a spin chain problem with non commuting terms.

(1) - C. Callan and D. Freed, Nucl. Phys. B **374**, 543 (1992).

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