

Kubo formula

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1 Introduction

The goal of this article is to derive the Kubo formula and I derive it by linear response formalism and some other kinds of proofs. Kubo formula is very essential in studying the linear response of solids to external fields like electric or magnetic. It is a very general formalism, so the Hamiltonian can be anything—a periodic Hamiltonian, free electrons Hamiltonian, tight binding Hamiltonian and even non-periodic ones too.