第 95 回トポロジカル物質科学セミナー
Topological Materials Science Seminar (95)

Geometric orbital magnetization in adiabatic processes

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RIKEN

Place: **Room K102, YITP**
Date: **May 16 (Thursday), 2019**
Time: **14:00-15:00**

Abstract:
We consider periodic adiabatic processes of gapped many-body spinless electrons. We find an additional contribution to the orbital magnetization due to the adiabatic time evolution, dubbed *geometric* orbital magnetization, which can be expressed as derivative of the many-body Berry phase with respect to an external magnetic field. For two-dimensional band insulators, we show that the geometric orbital magnetization generally consists of two pieces, the topological piece that is expressed as third Chern-Simons form in (t, k_x, k_y) space, and the non-topological piece that depends on Bloch states and energies of both occupied and unoccupied bands.

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