

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

THE BERRY PHASE AND THE PHASE OF THE DETERMINANT

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Feb 12, 2014, 4:00 – 5:00pm
Math/Computer Science, Room148
111 Cummington Street, Boston

Tea: 3:45pm in Room MCS 144

Abstract: In 1984 Michael Berry discovered that an isolated eigenstate of an adiabatically changing periodic Hamiltonian acquires a phase, called the Berry phase. Barry Simon gave an interpretation of this phase in terms of the holonomy of a certain Hermitian line bundle. There are several situation described in physical literature when the Berry phase is claimed to be equal to the phase of the determinant of the corresponding imaginary-time Schroedinger operator. However not only rigorous proofs but even the accurate formulations of these results are missing in the literature. In this talk we establish and prove the precise relationship between the phase of this determinant and the Berry phase under the most general assumption on the Hamiltonian. The previously known examples are the special cases of this formula.

See <http://math.bu.edu/research/geom/seminar.html> or contact Si Li sili@math.bu.edu for more information.