

Low lying spectrum of Bismut's hypoelliptic Laplacian in the double asymptotics of large friction and low temperature

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The Bismut hypoelliptic Laplacian, introduced by Bismut around 2000, is a two-parameter-dependent operator characterized by temperature h and friction b . It is known that the hypoelliptic Laplacian possesses a natural PT symmetry, is defined analogously to a Hodge operator, and converges to the Witten Laplacian in the low-temperature limit. These three properties provide insights into its low-lying spectrum in the regime of low temperature and high friction ($b \leq h$).