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Magnetic Lieb–Thirring Inequalities

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Abstract: We study the generalizations of the well-known Lieb–Thirring inequality for the magnetic Schrödinger operator with nonconstant magnetic field. Our main result is the naturally expected magnetic Lieb–Thirring estimate on the moments of the negative eigenvalues for a certain class of magnetic fields (including even some unbounded ones). We develop a localization technique in path space of the stochastic Feynman–Kac representation of the heat kernel which effectively estimates the oscillatory effect due to the magnetic phase factor.

Contents

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