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Concerning the localization of eigenvectors for the magnetic Laplacian operator

Over the past 15 years, significant progress has been made in the mathematical understanding of the mechanisms driving the spatial localization of eigenvectors for standard Schrödinger-type operators, $-\Delta + V$, with a rich theory developing around the so-called "localization landscape" function. In contrast, relatively little theory has been developed concerning localization phenomena for the magnetic Schrödinger operator, $(i\nabla + \mathbf{A})^2 + V$. We present some of our recent contributions to this topic, focusing on the magnetic Laplacian, $V = 0$, and providing both theoretical and computational results.