Spectral asymptotics of Landau Hamiltonians with singular interactions supported on curves in $\mathbb{R}^2$

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We consider the self-adjoint Landau Hamiltonian H_0 in $L^2(\mathbb{R}^2)$, whose spectrum consists exclusively of the infinitely degenerate eigenvalues $\{\Lambda_q\}_{q\in\mathbb{N}_0}$, which are called Landau levels, and the perturbed operator $H_\alpha = H_0 + \alpha\delta_\Gamma$, where $\Gamma \subset \mathbb{R}^2$ is a simple and compact $C^{1,1}$-curve and $\alpha \in L^\infty(\Gamma, \mathbb{R})$. It is well-known that the essential spectrum of H_0 is stable under perturbations of the above form, so the discrete eigenvalues of H_α must accumulate at the Landau levels Λ_q, $q \in \mathbb{N}_0$. It turns out, that the rate of accumulation towards each Landau level Λ_q is very closely related to the rate at which the singular values of the compact and self-adjoint Toeplitz-type operators $P_q\delta_\Gamma P_q$ tend to zero, where $P_q : L^2(\mathbb{R}^2) \to \ker(H_0 - \Lambda_q)$, $q \in \mathbb{N}_0$, denotes the projections into the eigenspaces of the Landau Hamiltonian. Our main contribution is the extension of the spectral theory of such Toeplitz-type operators from smooth curves to the more general case, where Γ is a $C^{1,1}$-curve in $\mathbb{R}^2$.