Generic properties of eigenvalues of a family of operators

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Let $\Omega(t)$, $0 \leq t \leq 1$, be a smooth family of bounded Euclidean domains, and let $\Delta(t)$ be the Dirichlet Laplacian in $\Omega(t)$. We call a family spectrally simple if the spectrum of $\Delta(t)$ is simple for all t. We prove that spectrally simple families form a residual set in the space of all families. A similar result holds in other situations, e.g. Laplace–Beltrami operators that correspond to a family of Riemannian metrics on a manifold, a family of Schrödinger operators (the potential depends on t).