
SPECTRAL SHIFT VIA LATERAL VARIATION

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February 22, 2021

Our study is motivated by earlier results about nodal count of Laplacian eigenfunctions on manifolds and graphs that share the same flavor: the nodal count's "deviation" is equal to the Morse index of a certain "energy functional" . In the hindsight, in all these results, the nodal count can be understood as the spectral shift resulting from perturbing the operator in an appropriate way. This brings us to the following general result (joint with G. Berkolaiko): the spectral shift can be recovered as the stability (Morse) index of the eigenvalue with respect to small "lateral" variations of the perturbation.