

Critical metrics for Laplace eigenvalues on Riemannian surfaces

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We investigate the general link between the critical unit area metrics for eigenvalues of the Laplace operator on closed surfaces, and minimal immersions of these surfaces by eigenfunctions. We will discuss the existence of such objects by variational methods. An analogous link between the critical unit perimeter metrics of the Steklov eigenvalues on surfaces with boundary and free boundary minimal immersions will be given.