
ON THE CRITICAL POINTS OF STEKLOV EIGENFUNCTIONS

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We consider the critical points of Steklov eigenfunctions on a compact, smooth n -dimensional Riemannian manifold M with boundary ∂M . For generic metrics on M we establish an identity which relates the sum of the indexes of a Steklov eigenfunction, the sum of the indexes of its restriction to ∂M , and the Euler characteristic of M . In dimension 2 this identity gives a precise count of the interior critical points of a Steklov eigenfunction in terms of the Euler characteristic of M and of the number of sign changes of u on ∂M .

Based on a joint work with Luca Battaglia (Università degli Studi Roma Tre) and Angela Pistoia (Sapienza Università di Roma).