

ON SOME PROPERTIES OF STEKLOV EIGENFUNCTIONS

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We focus on a couple of properties of the eigenfunctions of Steklov problem on a compact Riemannian manifold with boundary. First, we give a precise count of the interior critical points of a Steklov eigenfunction in terms of the Euler characteristic of the manifold and of the number of its sign changes the boundary. Based on a joint work with Luca Battaglia (Università degli Studi Roma Tre) and Luigi Provenzano (Sapienza Università di Roma)

Next, we disprove the conjectured validity of Courant's theorem for the traces of Steklov eigenfunctions building a Riemannian metric for which the n -th eigenfunction has an arbitrary number of nodal domains on the boundary. Based on a joint work with Alberto Enciso (ICMAT Madrid) and Luigi Provenzano (Sapienza Università di Roma) .