

UPPER BOUNDS, SPECTRAL RATIOS AND SPECTRAL GAPS FOR STEKLOV EIGENVALUES OF WARPED PRODUCTS

JADE BRISSON

In the first part of the talk, we investigate the Steklov spectrum of the warped product $[0, L] \times_h \Sigma$ equipped with the metric $dt^2 + h(t)^2 g_\Sigma$, where Σ is a compact surface. We find sharp upper bounds for the Steklov eigenvalues in terms of the eigenvalues of the Laplacian on Σ . In particular, we apply our method to the case of metric of revolution on the 3-dimensional ball and we obtain a sharp estimate on the spectral gap between two consecutive Steklov eigenvalues.

In the second part, we investigate the spectral ratios as well as spectral gaps for higher order Steklov eigenvalues of Riemannian manifolds with revolution-type metrics. This is based on joint works with Bruno Colbois and Katie Gittins.