PETR ZHEVANDROV, University of Cartagena, Cartagena, Colombia
Water waves guided by underwater obstacles

It is well-known that underwater obstacles such as ridges and submerged horizontal cylinders can serve as waveguides for surface water waves. It is also known that for large values of the wavenumber k in the direction of the ridge or cylinder, there is only one guided wave. We construct the corresponding eigenfunctions and eigenfrequencies assuming that $k \to \infty$ by means of reducing the initial problem to a pair of boundary integral equations and then solving them by applying the method of Zhevandrov and Merzon (Amer. Math. Soc. Transl. (2) **208**(2003), p. 235). The resulting formulas are infinite convergent series of the Neumann type, which reduce to quite simple asymptotics of the eigenfrequencies as $k \to \infty$.