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A complete solution of the Ursell problem

We consider the problem of the description of all trapping modes associated with a plane sloping beach model. G. G. Stokes in 1846 and F. Ursell in 1952 had found $M(\alpha)$ trapping modes on a sloping beach of an angle α, where $M(\alpha)$ is the largest n for which $(2n-1)\alpha \leq \pi/2$. However, it was not proved that *all* trapped modes in the Sobolev space H^1 were obtained. We prove this conjecture. Part of these results is joint work with A. Komech and P. Zhevandrov.

Reference: A. I. Komech, A. E. Merzon, P. N. Zhevandrov, On completeness of Ursell's trapping modes. Russian Journal of Mathematical Physics, (**4**), nr. 4 (1996), 457-485.