



Nonlinear interactions of edge waves above a uniform beach

O. Poloukhina (1,2), A. Kurkin (1), V. Dubinina (1), E. Pelinovsky (2)

(1) Department of Applied Mathematics, State Technical University, Nizhny Novgorod, Russia, (2) Laboratory of Hydrophysics and Nonlinear Acoustics, Institute of Applied Physics, Nizhny Novgorod, Russia (poloukhin@hydro.appl.sci-nnov.ru)

Nonlinear resonant interactions between triads of edge waves (including waves traveling the same and opposite directions) are considered for different forms of continental shelf topography: planar beach, concave exponential shelf and step shelf. For each case coefficients of interactions are computed for triads belonging to several low modes. The results are compared to those existing in the literature, and some conclusions are revised. In particular, certain triads of edge waves involving unidirectional propagation on a linear sloped shelf can not lead to interaction due to vanishing of interaction coefficients. But this result does not hold for all collinear edge wave triads on a plane beach.