Scattering of Water Waves by a Pair of Cylinders in a Channel

Pankaj Borah

Department of Mathematics, Bahona College, Jorhat, Assam, India

*Corresponding author's e-mail: pankajborahmajuli@gmail.com

A B S T R A C T

In this work, we consider a device which consists of a floating structure over a cylindrical plate placed at a finite height from the ocean floor. The ocean floor consider as impermeable and the whole fluid region is divided into five number of sub-regions and boundary value problems are formulated for each identified sub-region. The channel multipoles, separation of variables and matched eigenfunction expansion methods are used to solve this formulated diffraction boundary value problem for each sub-region. Also, we derive the wave forces due to diffraction on the proposed device. Consequently, the effects of the various parameters, e.g., drafts, radii, the gap between the cylinders and mainly channel width of the device on the wave forces exerted by the cylinders are presented graphically. The obtained results are compared with some available results.

Keywords: Diffraction; Channel; Eigenfunction

How to Cite

P. Borah, "Scattering of Water Waves by a Pair of Cylinders in a Channel", *AIJR Abstracts*, pp. 50–50, Feb. 2024.