

Effect of a submerged or a surface piercing porous barrier on structure-coupled gravity waves

ASHOK R¹, Srinivasa Rao Manam ¹, and M Sivanesan²

¹Indian Institute of Technology Madras

²National Institute of Technology Tiruchirappalli

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Abstract

Flexural or membrane-coupled or capillary gravity wave scattering by a submerged or a piercing vertical porous barrier is analytically studied based on a connection that involves the solution potentials and few auxiliary potentials. The problems for the auxiliary potentials are relatively easy to handle for their solutions. The original problem is decomposed into two scattering or radiation problems of this type. The solution wave potential is determined in terms of those resolved wave potentials. Numerical results for the explicitly obtained scattering quantities are also presented.

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