

Abstract Submitted
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Exact solutions for scattering by a patch of finite amplitude periodic bottom topography¹ JIE YU, GUANGFU ZHENG, Department of Civil, Construction and Environmental Engineering, North Carolina State University — Scattering of water waves by undulating bottom topography commonly occurs in coastal oceans, influencing many processes such as sediment transport and underwater acoustic propagation. In this study, we examine the scattering of water waves by a patch of periodic bottom corrugations with large amplitude, using an exact theory (Howard and Yu, *J. Fluid Mech.*, vol. **593**, 2007, pp.209-234). Issues of matching the solutions at the boundaries of corrugated and flat bottom will be discussed. Of particular interest is Bragg scattering, or Bragg resonance, which occurs when the spacing of corrugations is close to an integer multiple m of half a water wavelength. The primary ($m = 1$) scattering has been studied for well over two decades, studies of those higher order ($m > 1$) cases, however, are few. This will be discussed and the results presented.

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