

ΑΝΑΚΟΙΝΩΣΗ

Στα πλαίσια της επίσκεψης της Prof. Jie Yu (Department of Civil Engineering, και School of Marine and Atmospheric Sciences Stony Brook University, NY) στη Σχολή Ναυπηγών Μηχανολόγων Μηχανικών, θα δώσει ομιλία με θέμα

Water waves over a periodic seabed

την Δευτέρα 23/5/2016 και ώρα 15:00 στην Αίθουσα Β ορόφου του Εργαστ. ΕΝΘΥ.

Καλούνται όλοι οι ενδιαφερόμενοι να προσέλθουν.

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Wave propagation over variable topographies is a long-standing problem of importance in coastal engineering and oceanography. Such problems are mathematically challenging. In this talk, I shall present a new development of an exact Floquet theory for linear time periodic waves over a periodic seabed of arbitrary amplitude and shape. For surface waves in a homogeneous layer of fluid over the topography, for any given frequency (including those that are Bragg resonant), the theory provides a set of exact solutions that form a complete basis, analogous to the set of propagating and evanescent modes over a flat bed. This basis can be used to construct solutions to various (lateral) boundary value problems. For two-layer fluids over a periodic seabed, the dispersion relationship and waveforms of free wave modes are provided for a given frequency. Thus, Lamb's classical solution for a flat bed is extended to the case of periodic bed. For internal modes the interfacial wave shows rapid modulation at the scale of its own wavelength that is comparable to the bottom wavelength, whereas for surface modes it becomes a long wave carrier for modulating short waves of the bottom wavelength. Examples are shown, including the solutions that are Bragg resonated.