



Analysis Seminar

Mathematical theory of wave scattering by subwavelength resonators and applications

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Abstract

In this talk, we will present the recent development of mathematical theory of wave scattering by subwavelength resonators. We will take air-bubble as an example and consider the resonant scattering by a single bubble, a system of dilute bubbles and periodic array of bubbles. For a single bubble, we will derive asymptotic analysis for the Minnaert resonance. For dilute bubbles, we will show how to achieve an effective high contrast media which lead to super-focusing of wave field, and an effective double negative index media which lead to superlensing effect. For periodic bubbles, we will show a subwavelength band-gap opening, and further develop a high frequency homogenization theory for the wave propagation.

Date: February 28, 2018 (Wednesday)

Time: 4:30 - 5:30pm

Venue: Room 210, Run Run Shaw Bldg., HKU