JOINT EVENT

PHYSICAL MATHEMATICS SEMINAR
AND
APPLIED MATHEMATICS COLLOQUIUM

Focussing and Breathers in Ripples and Ice Waves

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ABSTRACT:

Capillary-Gravity waves describe water ripples with wavelength of a few centimetres. Flexural-gravity waves, which are waves under an inextensible flexible sheet, model, for example, waves under a continuous ice sheet with wavelengths in the tens or hundreds of metres. These two waves share many characteristics since the contribution to the physical energy due to surface deformations leads to "focussing dynamics". That is, sufficiently energetic waves tend to focus their energy. Whilst weakly nonlinear theory predicts a singularity as a result of this focussing, fully nonlinear computations in the capillary-gravity case show that the focussing is arrested, and that localised coherent structures, such as breathers, emerge. In the flexural-gravity case the picture is more complex, since focussing is enhanced by the induced mean flow and occurs only at finite depth.

MONDAY, DECEMBER 3, 2012
3:00 PM
Building 2, Room 131

Reception at 4:00 PM in Building 2, Room 290
(Math Dept. Common Room)

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