

Prof. Bernard Dacorogna - Section Mathématiques

SEMINAIRE D'ANALYSE

➤ **VENDREDI 14 Décembre 2012 à 15h15 - salle MA A330**

Professeur **MATS EHRNSTRÖM** (Norwegian University of Science and Technology, Norvège)
donnera une conférence sur le thème:

« On the existence and stability of solitary-wave solutions to a class of evolution equations of Whitham type »

We consider a class of pseudodifferential evolution equations of the form

$$u_t + (n(u) + Lu)_x = 0$$

in which L is a linear smoothing operator and n is at least quadratic near the origin; this class includes in particular the Whitham equation, the linear terms of which match the dispersion relation for gravity water waves on finite depth. A family of solitary-wave solutions is found using a constrained minimisation principle and concentration-compactness methods for noncoercive functionals. The solitary waves are approximated by (scalings of) the corresponding solutions to partial differential equations arising as weakly nonlinear approximations; in the case of the Whitham equation the approximation is the Korteweg-de Vries equation. We also demonstrate that the family of solitary-wave solutions is conditionally energetically stable.

Lausanne, le 6 décembre 2012
BD/BB/VL

Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet
<http://memento.epfl.ch/math/>