



## *Section Mathématiques*

### **SEMINAIRE D'ANALYSE**

➤ **VENDREDI 25 novembre 2011 à 15h15 à la salle MA A110**

*Monsieur Nikolay KUZNETSOV (Saint-Petersburg State University, Russie ) donnera une conférence sur le thème:*

### **"STOKES WAVES ON VORTICAL FLOWS WITH COUNTER-CURRENTS"**

The problem of two-dimensional nonlinear steady waves with vorticity is the talk's topic. First, parallel shear flows are considered; it occurs that the values of Bernoulli's constant, for which such flows exist, are greater than or equal to some critical value depending on the vorticity. Then conditions when counter-currents are present are investigated. This allows to describe the bifurcation mechanism resulting in the formation of Stokes waves (periodic waves whose profiles rise and fall exactly once per wavelength) on a free surface of a shear flow. A new dispersion equation, relating the wavenumber of Stokes waves to Bernoulli's constant, is obtained; this equation is the essential point of the bifurcation mechanism.

Lausanne, le 18 novembre 2011  
BD/BB/VL

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Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet (<http://memento.epfl.ch/cgi-bin/memento/select?memento=MATHS>)