Seminars − Gualtar   2008/2009

analysis, geometry & mathematical-physics

Date: 29 January, 11h (room B4009)

Speaker: V.A Solonnikov − POMI, Academia Russa de Ciências, S. Petersburgo, Rússia

Title: On the linearization principle for the evolution problem governed by the system of equations of a mixed type

Abstract: We study the system os equations of the type

$$u_t + A(x, \frac{\partial}{\partial x})u + R(u) = f(x), \quad x \in \Omega \subset \mathbb{R}^n.$$

where A is a linear operator of the form

$$A = \left(\begin{array}{cc} \mathcal{L}(x, \frac{\partial}{\partial x}) & \ell_1(x) \\ \ell_2(x) & \ell(x) \end{array} \right),$$

$\mathcal{L}(x, \frac{\partial}{\partial x})$ is a strongly elliptic matrix second order differential operator and $\ell_1(x), \ell_2(x), \ell(x)$ are matrices; by $R(u)$ we mean some nonlinear terms. The systems of this type are very useful in many biological, ecological and physical problems. We consider initial-boundary value problems for such systems and study the stability of stationary solutions on the basis of linearization principle.