ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Institut d'Analyse et Calcul Scientifique (IACS)
Section Mathématiques

SEMINAIRE D'ANALYSE

- ***VENDREDI 23 mai 2008 à 16h.15 à la salle MA 12***

Monsieur ***Giovanni PISANTE*** *(Seconda Università degli Studi di Napoli, Italie)* donnera une conférence sur le thème:

"SOME REGULARITY RESULTS FOR ENERGY SOLUTIONS TO NONLINEAR SECOND ORDER PARABOLIC SYSTEMS"

ABSTRACT. In this talk we deal with the study of some regularity properties of weak solutions to non-linear, second-order parabolic systems of the type

$$u_t - \operatorname{div} A(Du) = 0\,, \quad (x,t) \in \Omega \times (-T,0) = \Omega_T, \tag{1}$$

where $\Omega \subset \mathbb{R}^n$ is a bounded domain, $T > 0$, $A : \mathbb{R}^{nN} \to \mathbb{R}^N$ and $u : \Omega_T \to \mathbb{R}^N$.

We want to illustrate a possible way to approach differential problems related to non smooth operators A via an ad hoc approximation procedure and a fine regularity estimate for smooth problems.

With this aim in mind, we will survey on some recent results on higher integrability, higher fractional differentiability, partial regularity and estimates for the dimension of the singular sets of weak solutions of (1) under minimal regularity hypotheses on A.

Lausanne, le 9 avril 2008
BD/mg

Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet à l'adresse WWW (http:// www.epfl.ch/cgi-bin/memento/memento)