



# Announcement Workshop, June 2015 PERPIGNAN - France

The **L**aboratory of Mathematics and Physics (LAMPS) of the University of Perpignan Via Domitia (UPVD) organizes the international workshop

## Perpignan's Days on Applied Mathematics

The workshop will take place on June 10-12, 2015, with the participation of researchers involved in the European Project Marie Curie FP 7 People No. 295118 Contact - *Nonlinear Inclusions and Hemivariational Inequalities with Applications to Contact*. The lectures will take place in room P114 of the «Institut Franco-Catalan Transfrontalier» building, situated on the main campus of UPVD, on Thursday June 11 and Friday, June 12.

### ORGANIZING COMMITTEE

Mircea Sofonea (Chair)  
Mikael Barboteu  
Robert Brouzet  
Sylvia Munoz  
Joëlle Sulian

## Program

### Wednesday, June 10

(LAMPS, Building B, second floor)

15:00-17:00 **Chairman : Stanislaw Migorski**

Pannel Discussion on the European Project Marie Curie FP 7 No. 295118  
Contact - *Nonlinear Inclusions, Hemivariational Inequalities  
with Applications to Contact Mechanics*:

- Scientific Report;
- Financial Report ;
- Conclusions and perspectives;
- Problems for further research.



# Program

## Thursday, June 11

09:30-10:00 Registration

10:00:10:30 Opening Ceremony

**Chairman : Stanislaw Migorski**

10:30-11:10 **Meir Shillor**, Oakland University, Rochester MI, USA,  
*Population Models for Wood Frogs, Chagas Disease and HIV.*

11:10-11:50 **Zhenhai Liu**, Guangxi University for Nationalities, Nanning, China,  
*On a New Class of Semilinear Differential Mixed Variational Inequalities in Banach Spaces.*

12:00-14:00 Lunch

**Chairman: Mikaël Barboteu**

14:00-14 :30 **Marius Cocou**, LMA, CNRS, Marseille, France,  
*A Class of Implicit Inequalities and Applications to Dynamic Problems with Coulomb Friction.*

14:30-15:00 **Angel Rodriguez-Aros**, Universidade da Coruna, Spain,  
*On the derivation of models for elastic beams, plates and viscoelastic shells by using the asymptotic expansion method.*

15:00-15:30 **Anna Ochal**, Jagiellonian University, Krakow, Poland,  
*Variational-hemivariational Inequalities and Their Applications to Contact Mechanics.*

15:30-16:00 **Krzysztof Bartosz**, Jagiellonian University, Krakow, Poland,  
*Doubly Nonlinear Evolution Subdifferential Inclusions of Second Order.*

16:00-16:30 Coffee break

**Chairman : Meir Shillor**

16:30-17:00 **Yves Dumont**, CIRAD, Montpellier, France,  
*Modelling Fires and Tree-Grass Interactions in Savanna using Impulse Differential Equations.*

17:00-17:30 **Sebastien Gourbière**, Université de Perpignan Via Domitia, France  
*Mathematics Is Biology's Next Microscope, Only Better.*

17:30-17:50 **Mircea T. Sofonea**, MIVEGEC, CNRS, Montpellier, France,  
*Nested Dynamics with Partial Cotransmission : a General Model for Multiple Infections.*

17:50-18:20 **Jan Bulla**, University of Bergen, Norway  
and **Christoph Grunau**, Université de Perpignan Via Domitia, France,  
*Statistical Modelling in Epigenetics: a Pan-species Study of DNA Methylation Patterns by Means of Distributions of CpG o/e.*

18:20-18:50 **Emmanuel Amiot**, Lycée F. Arago, Perpignan, France  
*Tiling Problems in Music.*

19:00 Cocktail



## Chairman : Zhenhai Liu

08:50-09:30 **Dumitru Motreanu**, Université de Perpignan Via Domitia, France,  
*Comparison and Multiplicity of Solutions for Nonlinear Elliptic Systems and Associated Equations.*

09:30-10:10 **Stanislaw Migorski**, Jagiellonian University, Krakow, Poland  
*Hemivariational Inequalities of Evolution Type and their Applications to Contact Mechanics.*

10:10-10:30 *Coffee break*

## Chairman : Dumitru Motreanu

10:30-11:00 **Charles Horvath**, Université de Perpignan Via Domitia, France,  
*Exotic Convexities and more Particularly Tropical Convexities.*

11:00-11:30 **Walter Briec**, Université de Perpignan Via Domitia, France,  
*Duality and Separation in Some Idempotent Convex Structures.*

11:30-12:00 **Oana Serea**, Université de Perpignan Via Domitia, France,  
*Control Problems via Occupational Measures.*

12:00-14:00 *Lunch*

## Chairman : Anna Ochal

14:00-14 :30 **Serge Dumont**, Université de Picardie, Amiens, France,  
*On Enhanced Descent Algorithms for Solving Frictional Multicontact Problems with a Bi-potential Approach and Application to the Discrete Element Method.*

14:30-15 :00 **Piotr Kalita**, Jagiellonian University, Krakow, Poland,  
*Pullback Attractor for a Two-dimensional Incompressible Navier-Stokes Flow with Nonmonotone Friction.*

15:00-15:30 **Mikael Barboteu**, Université de Perpignan Via Domitia, France,  
*Numerical Modelling of a Dynamic Contact Problem with Normal Compliance, Finite Penetration and Nonmonotone Slip Rate Dependent Friction.*

15:30-15:50 **Flavius Patrulescu**, Institute of Numerical Analysis, Cluj-Napoca, Romania,  
*A Mixed Variational Formulation of a Contact Problem with Adhesion.*

15:50-16:10 **David Danan**, Université de Perpignan Via Domitia, France,  
*Analysis of Two Active Set type Methods to Solve Unilateral Contact Problems.*

16:10 *Closing ceremony*