Comité National de Mécanique Théorique et Appliquée
Nationaal Comité van Theoretische en Toegepaste Mechanica

the GRAduate School in MECHanics

GRASMECH' 2008

POSTER-DAY

03 October 2008

At theRoyal Military Academy
30 Avenue de la Renaissancelaan
1000 Brussels
www.rma.ac.be

PROGRAMME POSTERS

Participating Institutions	Programme Committee
Faculté Polytechnique de Mons (FPMs) Katholieke Universiteit Leuven (KULeuven) Université catholique de Louvain (UCL) Université de Liège (ULg) Universiteit Gent (UGent) Université Libre de Bruxelles (ULB) Von Karman Institute (VKI) Vrije Universiteit Brussel (VUB) Ecole Royale Militaire, Koninklijke Militaire School, Fac POL (ERM-KMS)	S. Cescotto, ULg, Département de Mécanique des Matériaux et Structures C. Conti, FPMs, Service de Mécanique rationnelle, Dynamique et Vibrations H. Deconinck, VKI, Aeronautics & Aerospace Department G. Degrez, ULB, Unité de Mécanique des Fluides F. Dupret, UCL, Unité de Mécanique Appliquée C. Lacor, VUB, Onderzoeksgroep Stromingsmechanica en Thermodynamics D. Vandepitte, KULeuven, Afdeling Productietechnieken, Machinebouw & Automatisering, president J. Vierendeels, UGent, Vakgroep Mechanica van Stroming, Warmte & Verbranding J.Vantomme, KMS, Dept Civil Engineering

GraSMech Poster Day

Objectives

GraSMech is organizing in **Brussels on October, 3 2008**, a Poster Day. This meeting is devoted to allow the PhD students to present a *poster* illustrating the current state of their research, the key issues to be addressed, their objectives, etc. Any *PhD student*, or even any doctor whose PhD was presented not earlier than in 2008, and whose research activities are related to the GraSMech scientific topics, is warmly invited to participate in this scientific event.
The research topics of the GraSMech Graduate School teams are all related to theoretical, computational and experimental Mechanics as well as to Civil Engineering, with a special emphasis on engineering aspects. Eleven different fields can be identified, to which the poster subjects should be associated :

1) Solid Mechanics, Vibrations and Acoustics ;
2) Fluid Mechanics ;
3) Materials Processing ;
4) Rheology ;
5) Applied Thermodynamics and Heat Transfer ;
6) Biomechanics ;
7) Programming Aspects and Computing ;
8) Structural Mechanics ;
9) Geomaterials Mechanics ;
10) Construction Materials ;
11) Transport and Logistics.
12) Mechatronics

Computational methods play a major role in most of the research topics of the GraSMech teams. Applications to industrial problems are important.

Schedule of the day

The poster day will be subdivided in *two half days (AM+PM) and invited talks*. All the posters will stay from the AM opening session to PM closing session. Participants will be allowed to present their contribution through a short PPT (5 minutes)
The schedule of the day is as follows :

(1) From 08h15H Opening of the exhibition room for the AM-PM poster session.
(2) 09.30H Welcome at RMA. Survey of the R&D at RMA (Conference Room)
(3) 09.50 H Analysis of differential diffusion phenomena in high enthalpy flows, with application to thermal protection material testing in ICP facilities : **Dr Ir Pietro Rini**

(4) 10.30 H Poster session – PPT and Posters
(5) 11.30 H VIEW-FINDER, a European Project in Robotics: **Prof Y.Baudoin, ERM**
(6) 12.00 H Lunch
(7) 14.00 H Non-linear static and dynamic simulation methods for progressive collapse: **Ph. Bouillard, K. Menchel, B. Santafé and T. J. Massart Groupe BATir, Université Libre de Bruxelles ULB**
(8) 14.45 H Poster session – PPT and Posters
(9) 15.45 H – Closure of the poster day – Awards

Poster specifications

Each registered participant will be allotted a 1m width x 2m height surface for his poster.

Registration

Registration is completely *free*.

Location

www.rma.ac.be

Entrance: 30 Av de la Renaissance (till 09.00H) or 8, Hobbemastreet (closer to the conference room): ask for the Conference Complex.
The Poster session will take place in the Conference Complex of the RMA.
All talks will be given in the *Conference Room* near the Poster Lobby
For those who come *by car, free but limited parking* is available through 8, Hobbemastreet (on view of the invitation receipt)
For those who come *by train*, it is easy to reach the meeting location from the Subway SCHUMAN station by walking: see Website.

Lunch

The restaurant of the RMA : 5 €/lunch. A lot of restaurants may also be found in the vicinity of the RMA (obviously expensiver).

Best poster contest

Poster awards will be attributed at the end of the day by a Jury among the members of the Belgian National Committee for Theoretical and Applied Mechanics (BNCM).

Announced POSTERS

Elmar Recker (RMA)	Hydrogen micro-mix combustor
Benoit Marinus (RMA)	Multidisciplinary optimization of aircraft propeller blades
Thomas Nierhaus (VKI)	Eulerian/Lagrangian simulations of particle-laden and bubbly twophase flows
Raphaël Paulus (ULg)	Numerical analysis of coupled mechanical and hydraulic effect induced by a blood pressure meter
Quentin Bombled, O.Verlinden (FPMs)	Simulation and electronic design of the AMRU5 walking robot
Joan Trilla (RMA)	H2 micro combustion for micro gas turbine engines
Francois Hanus, J.M.Franssen (ULg)	Behaviour of steel connections under natural fire
Bart Saerens, M.Diehl, E Van den Bulck (KUL)	Optimal control of automotive powertrains
François Kerger, P.Archambeau, S.Erpicum, B.J.Dewals, M.Pirotton (ULg)	Improving the design of hydraulic structures – A unified 1D simulation tool for highly transient water flow
Karel Vergote (KUL)	An efficient wave based method for steady-state structural dynamics
Bertha Santafe (RMA)	Modellling of RC structures for progressive collapse simulation
Khairy El Sayed, Ch.Lacor (VUB)	Effects of geometry parameters on flow field of cyclone separator
Antoine Poncelet (UCL)	Steady state curving of road vehicles: multibody modelling and behaviour analysis
Maxime Raison (UCL)	Quantification of agonistic and antagonistic muscle forces during forearm flexion/extension
Ivan De Visscher, T.Lonfils, G.Winckelmans (UCL)	Improvement of the deterministic/probabilistic wake vortex models (DVM/PVM) for the combined effects of ground and meteorology
Vincent Péron-Lührs, L.Stainier (ULg)	Multiscale approach to materials physics
Pierre-Alexis Douxchamps (ULB)	Coupling between thermodynamic and nodal models for diesel cooling management
Etienne Pecquet (ULg)	Macro cellular metallic forms for energy absorption
Terence Rayee (ULB)	Development and validation of a tool for the design of propellers optimized for low speed aircraft
Maria Martinez-Rodrigo, P.Nuseros, G.De Roeck (KUL)	Vibration control of railway bridges under high speed traffic using fluid viscous dampers

Shashank Gupta, P.Fiala, G.Degrande, F.Augustinovicz, G.Lombaers (KUL)	Numerical modeling of ground borne vibration due to railway traffic
Bram Desmet (RMA-KUL)	Prediction of blast-induced wave propagation in the soil
Laurent Berkovic (RMA)	high Temperature tests using split Hopkinson pressure bars
Sylvain Bouillon (UCL)	The elastic-viscous Plastic Sea Ice Model on Different Grid Types
Olivier Lietard (UCL)	Improving the representation of small-sacle processes with a finite element sea ice model
Laurence Brassart,L.Delannay, I.Doghri, P.H.Geubelle (UCL)	The Mori-Tanaka homogenization for particulate composites in finite strain with cohesive modeling of debonding
M.Melchior, P.J.Jacques,L.Delannay (UCL)	Crystal Plasticity modeling in Texture development in TWIP steel
Benjamin De Brye, E.Deleersnijder,O.Gourgue,A de Brauwere, T.Karna (UCL-VUB)	A multi-scale finite element tidal model of the Scheldt estuary and the North Sea
Dimitrios Kakogiannis, S.Palanirelu,K.Dewolf, D.Van Hemlelrijck, W.Paepegem, J.Vantomme (VUB-RMA)	Study of the Energy Absorption Capacity of Pultruded Composite tubes
Andreas Makris, C.Ramault, D.Van Hemelrijck,E.Lamkanfi, W.Van Paepegem (VUB)	Towards the characterisation of biaxial material performance