

# Workshop

## *Constitutive relations and numerical simulation of industrial dynamic processes*

Metz, Novembre 21 to 23, 2007

### Planning

Wednesday 21 November, 2007

8.30 - 9.30	<b>Registration</b>
9.30 - 10.00	<b><i>Dynamic crushing and impact energy absorption of aluminum square extrusions: effect of cutouts</i></b> A. Limam, D. Al-Galib, A. Combescure
10.00 - 10.30	<b><i>Energy absorption of spot-welded thin-walled beams subjected to axial crushing</i></b> A. Koczyński, J. Karliński, A. Tobota, T. Smolnicki
10.30 - 11.00	<b>Coffee break</b>
11.00 - 11.30	<b><i>Development of bend-impact test procedure to validate dynamic tensile mechanical properties of sheet metals and alloys for automotive crash applications</i></b> P.K.C. Wood, C. A. Schley, M. Buckley
11.30 - 12.00	<b><i>Experimental analysis of fluid filled aluminium tubes submitted to high velocity impact</i></b> D. Varas, J. López-Puente, R. Zaera
12.00 - 14.00	<b>Lunch</b>
14.00 - 14.30	<b><i>Effect of plastic behavior and boundary conditions coupled with elastic wave propagation on the collapse site of a crash-box</i></b> A. Rusinek, R. Zaera, P. Forquin, J.R. Klepaczko
14.30 - 15.00	<b><i>Finite element modelling of high velocity cutting of bars and tubes</i></b> B. L. Josefson, F. Hernelid, M. Ekh, K. Rytberg, M. Knutsson Wedel
15.00 - 15.30	<b>Coffee break</b>
15.30 - 16.00	<b><i>Prediction of distortions induced during machining process by the level-set method</i></b> O. Pierard, J. Barboza, L. D'Alvise, A. Perez-Duarte
16.00 - 16.30	<b><i>Numerical prediction of residual stresses after machining</i></b> H. Miguélez, R. Zaera, R. Cheriguene, A. Rusinek, A. Moufki, A. Molinari
16.30 - 17.00	<b><i>A numeric model for a load sensor to investigate high speed interactions</i></b> M. Ben Zeineb, S. Philippon, P. Lipinski, P. Chevrier, G. Sutter, A. Suffis
17.00 - 18.00	
18.00 - 0.00	<b>Cocktail</b>

Thursday 22 November, 2007

8.30 – 10.30	<b>CENAERO – Company – Thermography</b> <b>CEDIP – Company – FE code</b> <b>POLYTEC – Company - Laser</b>
10.30 - 11.00	<b>Coffee break</b>
11.00 - 11.30	<b>A comparison of orthogonal cutting simulations using two different finite element models</b> M.Jrad, A. Devillez, D. Dudzinski
11.30 - 12.00	<b>Temperature measurement by infrared and visible thermography – application to dynamic processes</b> N. Ranc, G. Sutter, V. Pina
12.00 – 14.00	<b>Lunch</b>
14.00 – 14.30	<b>Identification of friction variables at the tool-chip interface for high speed machining</b> J. Brocaïl, M. Watremez, R. Deltombe, L. Dubar
14.30 – 15.00	<b>Numerical approach to determine the adhesion of a CVD diamond coating for machining</b> D. Moulin, P. Chevrier, P. Lipinski
15.00 – 15.30	<b>Coffee break</b>
15.30 – 16.00	<b>Dynamic bulge testing of sheet metal using a modified split Hopkinson pressure bar system</b> D. Mohr, V. Grolleau, G. Gary
16.00 – 16.30	<b>Evaluation du comportement mécanique des tuyaux en acier X52 après l'opération de sablage</b> A. Alhoussein, J. Gilgert, A. Tidu, Z. Azari
16.30 – 17.00	<b>New applications of the modified double shear experimental technique</b> J.R. Klepaczko, A. Rusinek
17.00 – 18.00	
18.00 – 0.00	<b>Diner</b>

Friday 23 November, 2007

9.30 - 10.00	<b>Constitutive modelling of dynamic behaviour of high strength steels based on double shear test</b> R.B. Pecherski, Z. Nowak, W.K. Nowacki, P. Perzyna
10.00 - 10.30	<b>Internal variable modeling of the dynamic behavior of metals</b> L. Durrenberger, A. Molinari, A. Rusinek
10.30 - 11.00	<b>Coffee break</b>
11.00 - 11.30	<b>Dynamic behaviour and modeling of multiphase trip steels: A comparison between the phenomenological and micro-mechanical approach</b> J. Van Slycken, J. Bouquerel, P. Verleysen, J. Degrieck
11.30 - 12.00	<b>Recent advances in applications of the RK constitutive relation</b> J.R. Klepaczko, A. Rusinek
12.00 – 14.00	<b>Lunch</b>
14.00 – 14.30	<b>Numerical simulations of shear bands and cracks propagation in metals</b> A. Glema, T. Łodygowski
14.30 – 15.00	<b>Investigation of the failure mode of mild steel sheets subjected to perpendicular impact by hemispherical projectiles</b> A. Rusinek, J. A. Rodríguez-Martínez, R. Zaera, C. Sauvelet, A. Arias, J. R. Klepaczko
15.00 – 15.30	<b>Coffee break</b>
15.30 – 16.00	<b>Formulation of the cooperative model for the yield behavior of polymers: from quasi-static to impact loading rates</b> S. Ahzi, O. Gueguen, J. Richeton, A. Makradi
16.00 – 16.30	<b>Dynamic characterization of functionally graded cellular materials</b> H. Zeng, s. Pattofatto, h. Zhao
16.30 – 17.00	<b>Proposition of adaptative set up for tensile/compressive loading using a pre stressed Hopkinson bars device</b> G. Haugou, E. Markiewicz