



Photomechanics2011

Vrije Universiteit Brussel

Brussels, 7-9th February 2011

SCIENTIFIC PROGRAMME

PROGRAMME AT A GLANCE

Sunday 6th February	
19.00 → 21.00	Registration Hotel Novotel, Rue Vierge Noire 32 Brussels (City Center) Room 'Tour Ivoire'

Monday 7th February	
8.00 → 8.45	Registration BUILDING Q
8.45 → 9.00	Welcome address
9.00 → 9.45	Keynote lecture Prof Sutton <i>Chairman: Prof. J.J. Orteu</i>
9.45 → 10.45	Session 1: High speed DIC <i>Chairman: Prof. W. Van Paepegem</i>
10.45 → 11.15	Coffee break
11.15 → 12.35	Session 2: DIC applications <i>Chairman: Prof. M. Sutton</i>
12.35 → 14.00	Lunch
14.00 → 15.40	Session 3: Material identification <i>Chairman: Prof. M. Grédiac</i>
15.40 → 16.40	Exhibitors presentations Refreshments
16.40 → 18.20	Session 4a: Novel optical methods <i>Chairman: Prof. E. Hack</i>
16.40 → 18.20	Session 4b: DIC algorithms and applications <i>Chairman: Prof. P. Vacher</i>

Tuesday 8th February	
8.40 → 9.25	Keynote lecture Prof D. Rittel <i>Chairman: Prof. B. Watrisse</i>
9.25 → 10.45	Session 5: Thermomechanics 1 <i>Chairman: Prof. J. Dulieu-Barton</i>
10.45 → 11.15	Coffee break
11.15 → 12.35	Session 6: Fatigue/NDT 1 <i>Chairman: Prof. R. Groves</i>
12.35 → 14.00	Lunch
14.00 → 16.00	Session 7a: Thermomechanics 2 <i>Chairman: Prof. U. Galietti</i>
14.00 → 16.00	Session 7b: Fatigue/NDT 1 <i>Chairman: Prof. D. Van Hemelrijck</i>
16.00 → 22.00	Departure conference dinner

Wednesday 9th February	
8.40 → 9.25	Keynote lecture Prof. P. Bayly
9.25 → 10.25	Session 8: Micro-mechanics <i>Chairman: Prof. M. Bornert</i>
10.25 → 10.45	1 minute poster introductions
10.45 → 12.35	Poster session and product demo's with refreshments
12.35 → 14.00	Lunch
14.00 → 15.40	Session 9a: Photoelasticity <i>Chairman: Prof. V. Sainov</i>
14.00 → 15.40	Session 9b: Dynamics testing <i>Chairman: Prof. H. Sol</i>
15.40	Conference closure

DETAILED PROGRAMME

Monday 7th February	
8.00 → 8.45	Registration, Building Q
8.45 → 9.00	Welcome address ROOM QB
9.00 → 9.45	Keynote lecture <i>Chair: Prof. J.J. Orteu</i> Prof Michael Sutton, Department of Mechanical, University of South Carolina, USA <i>Experimental studies of engineering materials employing digital image correlation for deformation and shape measurement</i>
9.45 → 10.45	Session 1: High speed DIC ROOM QB <i>Chair: Prof. W. Van Paepegem</i>
9.45 → 10.05	<i>Ultra-high speed imaging and virtual fields method for identification of mechanical properties of concrete in spalling tests</i> <u>F. Pierron</u> and P. Forquin, France
10.05 → 10.25	<i>The use of dic for high strain rate material testing</i> <u>J. Peirs</u> , P. Verleysen, W. Van Paepegem and J. Degrieck, Belgium
10.25 → 10.45	<i>3D high-speed digital image correlation measurements of blast loaded plates</i> <u>K. Spranghers</u> , D. Lecompte, H. Sol and J. Vantomme, Belgium
10.45 → 11.15	Coffee break
11.15 → 12.35	Session 2: DIC applications ROOM QB <i>Chair: Prof. M. Sutton</i>
11.15 → 11.35	<i>Voxelwise digital volume correlation</i> J.-N. Périé, H. Leclerc, F. Hild, <u>S. Roux</u> , France
11.35 → 11.55	<i>Identification of post-necking hardening behaviour of sheet metal</i> <u>S. Coppieeters</u> , S. Cooreman, H. Sol, P. Van Houtte and D. Debruyne, Belgium
11.55 → 12.15	<i>Investigation of strains in a transverse weld tensile test specimen through digital image correlation</i> <u>M. Verstraete</u> , S. Hertelé, W. De Waele, J.-B. Wellekens, Belgium
12.15 → 12.35	<i>Accurate strain analysis of titanium sheet in single point incremental forming process by digital image correlation</i> <u>Y. Balcaen</u> , L.Robert, V. Velay, V. Vidal, P. Lours, France
12.35 → 14.00	Lunch

Monday 7th February

	Session 3: Material identification ROOM QB <i>Chair: Prof. M. Grédiac</i>
14.00 → 15.40	
14.00 → 14.20	<i>Characterisation of mechanical behaviour's heterogeneities by full-field measurements and identification of parameters of the constitutive equations. Application to p91 welded joint</i> <u>M. Touboul</u> , J. Crepin and G. Rousselier, France
14.20 → 14.40	<i>Constructive hebehavior identification using a highly heterogeneous 3d test</i> T. Pottier and F. Toussaint and <u>P. Vacher</u> , France
14.40 → 15.00	<i>Stress based inverse method for material parameter identification purposes</i> <u>B. Belkassem</u> , S. Bossuyt and H. Sol, Belgium
15.00 → 15.20	<i>Optical measurement of local strains development and load transfer in wood-plastic composites</i> <u>L. Muszyński</u> , J.A. Nairn, M. Schwartzkopf, F. Hussain, USA
15.20 → 15.40	<i>Elastic characterization of the gerbil pars flaccida with moire profilometry and inverse modeling</i> <u>J. Aernouts</u> and J. J. J. Dirckx, Belgium
	Exhibitors presentations
15.40 → 16.40	Refreshments
	Session 4a: Novel optical methods ROOM QB <i>Chair: Prof. E. Hack</i>
16.40 → 18.20	
16.40 → 17.00	<i>Full-field displacement measurement by speckle interferometry with double symmetrical illumination using diode lasers and holographic optical elements</i> <u>V. Sainov</u> , E. Stoykova, B. Ivanov, M. Shopova, A. Bojadjev, K. Zdravkov, Y. Ishii, Bulgaria
17.00 → 17.20	<i>Shear strain elastography as a means of generating contrast using optical coherence tomography</i> <u>A. Grimwood</u> , L. Garcia, J. Bamber, J. Holmes, P. Woolliams, P. Tomlins, Q. A. Pankhurst, United Kingdom
17.20 → 17.40	<i>Electronic speckle pattern interferometry at thermal infrared wavelengths : a new technique for combining temperature and displacement measurements</i> <u>M. Georges</u> , C.Thizy, J-F. Vandenrijt, Belgium
17.40 → 18.00	<i>Application of signal to noise phase map recorrelation to speckle shearography</i> <u>J. Molimard</u> , W. Dandach, P. Picart, France
18.00 → 18.20	<i>Phase shifted digital speckle pattern interferomtry and shearography of small bone deformations</i> <u>J.A.M. Soons</u> and J.J.J. Dirckx, University of Antwerp,Belgium
	Session 4b: DIC algorithms and applications ROOM QD <i>Chair: Prof. P. Vacher</i>
16.40 → 18.20	
16.40 → 17.00	<i>Regularized newton-raphson method for small strain calculation</i> <u>C. Cofaru</u> , W. Philips and W. Van Paepegem, Belgium
17.00 → 17.20	<i>Evaluation of displacement discontinuities by digital image correlation and differential techniques</i> <u>A. Sousa</u> , J. Xavier, J. Morais, M. Vaz, and V. Filipe, Portugal
17.20 → 17.40	<i>Measuring strain errors in DIC invoking heterogeneous deformation fields generated by plastic FEA</i> <u>P.Lava</u> , Y. Wang and D. Debruyne, Belgium
17.40 → 18.00	<i>Measuring thermal strains during the welding of tubes with dic</i> <u>M. De Strycker</u> , P. Lava, W. Van Paepegem, L. Schueremans and D. Debruyne, Belgium
18.00 → 18.20	<i>Intragranular strain field evolution during the transient creep of 2-d columnar ice inferred from image correlation</i> <u>F. Grennerat</u> and M. Montagnat, O. Castelnau, P. Duval, P. Vacher, France

Tuesday 8th February

8.40 → 9.25	<u>Keynote lecture</u> ROOM QB <i>Chair: Prof. A. Chrysochoos</i> Prof Daniel Rittel, Faculty of Mechanical Engineering Technion, Israel Institute of Technology, Israel <i>Some applications of infrared sensing in mechanics of materials</i>
9.25 → 10.45	<u>Session 5: Thermomechanics 1</u> ROOM QB <i>Chair: Prof. J. Dulieu-Barton</i>
9.25 → 9.45	<i>Experimental evidence of phase transformations in a cu-ai-be s.m.a monocrystalline tensile specimen using full-field measurement techniques</i> D. Delpueyo, X. Balandraud, M. Grédiac and C. Badulescu, France
9.45 → 10.05	<i>Identification of cohesive zone models using thermomechanical imaging techniques</i> S. Wen, A. Chrysochoos, Y. Monerie, B. Wattrisse, France
10.05 → 10.25	<i>Investigation of thermomechanical interaction effects in sandwich structures using digital image correlation through an optical window</i> S. Zhang, J.M. Dulieu-Barton, R. Fruehmann, and O. T. Thomsen, United Kingdom
10.25 → 10.45	<i>Through-thickness analysis of adhesively bonded composite joints</i> G. Crammond, S.W. Boyd and J.M. Dulieu-Barton, United Kingdom
10.45 → 11.15	Coffee break
11.15 → 12.35	<u>Session 6: Fatigue/NDT 1</u> ROOM QB <i>Chair: Prof. R. Groves</i>
11.15 → 11.35	<i>Low energy impact damage detection using shearography</i> D. T. Goto, M. I. Faraz, C. D. Rans and R. M. Groves, The Netherlands
11.35 → 11.55	<i>Energy dissipation in copper during vhf loading</i> A. Blanche, N. Ranc, V. Favier, A. Chrysochoos, France
11.55 → 12.15	<i>Space-time diffuse approximation filtering: application to early damage detection in interlock composites</i> P. Feissel, J. Henry, M. Ben Azzouna and Z. Aboura, France
12.15 → 12.35	<i>Identification of a crack propagation by digital image correlation</i> F. Mathieu, F. Hild, S. Roux and J. Duval, France
12.35 → 14.00	Lunch
14.00 → 16.00	<u>Session 7a: Fatigue/NDT 2</u> ROOM QB <i>Chair: Prof. D. Van Hemelrijck</i>
14.00 → 14.20	<i>Analysis of the durability of glued wood-concrete assembly subjected to water loading by full-field strain measurements</i> L. Loulou, S. Caré, R. Le Roy and M. Bornert, France
14.20 → 14.40	<i>Kinematic field measurement at the crack tip of crystallizable natural rubber under cycles</i> E. Toussaint and J.-B. Le Cam, France
14.40 → 15.00	<i>Identification of the mechanism of fatigue crack growth in rubbers under severe loading by means of full field measurement</i> J.-B. Le Cam and E. Toussaint, France
15.00 → 15.20	<i>Essential work of fracture (ewf) concept on modified pla: strain field analysis by image correlation</i> M. Aloui Dalibey, P. Ienny, AS. Caro-Bretelle, A. Bergeret, MF. Lacrampe and P. Krawczak, France
15.20 → 15.40	<i>Energy dissipation in constant amplitude and two load levels fatigue tests of stainless steel specimens</i> B. Atzori, M. Bordignon, G. Meneghetti, M. Ricotta, Italy
15.40 → 16.00	

Tuesday 8th February

	Session 7b: Thermomechanics 2 ROOM QD <i>Chair: Prof. U. Galietti</i>
14.00 → 16.00	
14.00 → 14.20	<i>Thermomechanical characterisation of transformation bands in ni-ti shape memory alloys</i> A. Maynadier, <u>K. Lavernhe-Taillard</u> and O. Hubert, France
14.20 → 14.40	<i>Experimental validation of heat source field estimations</i> <u>H. Louche</u> , V. Delobelle and D. Favier, France
14.40 → 15.00	<i>Thermoelastic and numerical analysis of polycarbonates specimens</i> C. Colombo, <u>A.Sciuccati</u> and L. Vergani, Italy
15.00 → 15.20	<i>Determination of linear thermal expansion coefficient by using digital image correlation</i> <u>J. Blom</u> , J. Van Ackeren, B. Belkassam, J. Wastiels, Belgium
15.20 → 15.40	<i>Enhanced image processing techniques to improve the resolution of phase thermography</i> <u>G. Arroud</u> , P. Guillaume, Belgium
15.40 → 16.00	<i>Applications of thermal methods for the evaluation of the structural integrity of composite materials</i> <u>U. Galietti</u> and D. Palumbo, Italy
16.00 → 22.00	Departure conference dinner bus

Wednesday 9th February

8.40 → 9.25	<u>Keynote lecture</u> ROOM DB <i>Chair: Prof. F. Pierron</i> Prof Philip Bayly, Department of Mechanical, Aerospace, and Structural Engineering, Washington University, USA <i>Magnetic resonance imaging of deformation and mechanical properties in the intact, living brain</i>
9.25 → 11.05	<u>Session 8: Micro-mechanics</u> ROOM QB <i>Chair: Prof. M. Bornert</i>
9.25 → 9.45	<i>Stress field in deformed polycrystals at the micron scale</i> <u>J. Petit</u> , M. Bornert, O. Castelnau, C. Le Bourlot, O. Robach, J.S. Micha, O. Ulrich, France
9.45 → 10.05	<i>Mechanical characterization using a scanning microdeformation microscope and full-field measurements</i> <u>T. Travailliot</u> and F. Amiot, France
10.05 → 10.25	<i>Equilibrium-based regularization of multiple wavelengths imaging microscopy measurements for the electro-elastic coupling modelling</i> <u>C. Flammier</u> , Y. Fedala, F. Kanoufi, G. Tessier, J.P. Roger, F. Amiot, France
10.25 → 10.45	1 minute poster introductions
10.45 → 12.35	Poster session and product demo's with refreshments
12.35 → 14.00	Lunch
14.00 → 15.40	<u>Session 9a: Photoelasticity</u> ROOM QB <i>Chair: Prof. V. Sainov</i>
14.00 → 14.20	<i>Speckle noise reduction in full-field stress analysis by interferometric phase-stepping implementation of the photoelastic-coating method</i> <u>E. Stoykova</u> , W. Van Paepegem, T. Liubenova, B. Ivanov, A. Degrieck, V. Sainov, Bulgaria
14.20 → 14.40	<i>Calculation of stress intensity factors for an interfacial notch of a bi-material joint using photoelasticity</i> <u>M.R. Ayatollahi</u> and M.M. Mirsayar, Iran
14.00 → 15.40	<u>Session 9b: Dynamics testing</u> ROOM QD <i>Chair: Prof. H. Sol</i>
14.00 → 14.20	<i>Using full-field measurement techniques to validate simulations of dynamic events</i> <u>E. Hack</u> , E.A. Patterson, G. Lampeas, J. Mottershead, T. Siebert, and M. Whelan, Switzerland
14.20 → 14.40	<i>An experimental study on the linear vibration of cables in two dimensions</i> <u>T. C. Nhung Nguyen</u> , A. Deraemaeker and A. Preumont, Belgium
14.40 → 15.00	<i>Application of digital image correlation technique for measuring dynamic parameters during impact loading</i> <u>S. Palanivelu</u> , W. Van Paepegem, J. Degrieck, J. Van Ackeren, D. Kakogiannis, J. Wastiels, D. Van Hemelrijck, J. Vantomme, Belgium
15.00 → 15.20	<i>Determination of stresses in a biaxially loaded cruciform composite specimen</i> <u>C. Ramault</u> , A. Makris, D. Van Hemelrijck, E. Lamkanfi and W. Van Paepegem, Belgium
15.20 → 15.40	<i>Optical measurement of the dynamic strain field of a fan blade using a 3-d scanning vibrometer</i> <u>C. Vuysse</u> , S. Vanlanduit, F. Presezniak, G. Steenackers, P. Guillaume, Belgium
15.40	Conference closure

Posters

ROOM 'NELSON MANDELA'

Photorefractive interferometry for imaging transient and periodic saw

J. Xiong and C. Glorieux, Belgium

Theoretical analysis of photoelastic fringe patterns for v-notches

M. R. Ayatollahi and M. Deghany, Iran

Experimental evaluation of first non-singular term of sharp notches using photoelasticity

M. R. Ayatollahi and M. Nejati, Iran

Local strain variation in the plies of a satin weave composite: experimental vs. Numerical

S. Daggumati, E. Voet, W. Van Paepegem, J. Degrieck, T. Praet, B. Verhegghe, J. Xu, S.V. Lomov, I. Verpoest, Belgium

Enriched kinematics for cracked structures: application to confined plasticity or fracture process zone characterization

C. Henninger, F. Hild and S. Roux, France

Thermomechanical analysis of an al-mg alloy sheet by means of non-isothermal tensile tests up to 200°C

J. Coër, C. Bernard, H. Laurent, M. Carin, P. Chauvelon, P.Y. Manach, France

3-d digital image correlation strain measurement in expansion-due -to-compression test of zircaloy 4 cladding tube after loca conditions

M. He, A. Parrot, D. Leclaire, and S. Leclercq, France

Improving the metrological performances of the grid method by accounting for grid defects

C. Badulescu, M. Grédiac and J.-D. Mathias, France

Identification of the non-elastic behaviour of metals via dic measurements and inverse methods

I. Vasilakos and H. Sol, Belgium

Identification of contact zones and friction coefficients from full field displacement surface measurements

S. Andrieux and T. Nouri Baranger, France

3-d digital image correlation strain measurement in expansion-due -to-compression test of zircaloy 4 cladding tube after loca conditions

M. He et al, France

Shape and temperature field distortions induced by convective effect on hot object in near infrared and infrared bands

A. Delmas, J. M. Buchlin, Y. Le Maout, T. Sentenac, J.J. Orteu, France

An analysis of the effect of particle size distribution on model pile installation in granular material

A. Beijer-Lundberg and J. Dijkstra, The Netherlands