



**INSTITUTE OF FUNDAMENTAL
TECHNOLOGICAL RESEARCH
POLISH ACADEMY OF
SCIENCES**

Co-organized by



The 8th WORKSHOP

**DYNAMIC BEHAVIOUR OF MATERIALS
AND ITS APPLICATIONS IN
INDUSTRIAL PROCESSES**

Warsaw, 25-27 June, 2014

<http://workshop2014.ippt.pan.pl>

<http://www.ippt.pan.pl/en/>

CONFERENCE PROGRAMME

About Workshop

Within the last years, a consortium of Universities and Research Centers including the University Carlos III of Madrid, the National Engineering School of Metz, the Poznan University of Technology and the Institute of Fundamental Technological Research of the Polish Academy of Sciences, Warsaw, have been organizing an annual International Workshop devoted to the dynamic behaviour of materials.

Organizing Committee

- R. Pęcherski - Chairman of the Conference
- Z. Nowak - Chairman of the Conference
- W. Moćko - Scientific Secretary
- M. Nowak (IPPT PAN Warsaw)
- L. Fraś (IPPT PAN Warsaw)
- K. Nalepka (AGH Krakow)

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- | | |
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http://www.explomet.pl/index_en.HTM

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Invited Lectures

Alexis Rusinek (National Engineering School of Metz) – opening lecture:

Discussion about friction effect under quasi-static and dynamic loading, modelling and applications

Krzysztof Gałka and Aleksander Gałka

(EXPLOMET High - Energy Techniques Works):

Explosive cladding of metals technology – selected aspects of industrial application

Kinga Nalepka (AGH University of Science and Technology):

Modeling microstructure of copper-sapphire nanocomposites

Wojciech Sumelka (Poznan University of Technology):

Fractional calculus for continuum mechanics - theory, applications and future tasks

Conference Venue

Conference will take place in the Mirrors Room at Staszic Palace, Nowy Świat 72, Warsaw.

Social Events

Visit in the Laboratory of Motor Transport Institute, 03-301 Warsaw, 80 Jagiellońska

Thursday, June 26, 14:00

Meeting point in front of the Staszic Palace, Nowy Świat 72

Directly after visit in the Laboratory:

Żelazowa Wola excursion, concert and Gala Dinner

The excursion includes:

- Chopin concert in Żelazowa Wola
- bus service to transport all participants from Warsaw and the way back to Warsaw after dinner in Żelazowa Wola

08:30-10:00 **Registration**

Mirrors Room (the first floor of Staszic Palace)

10:00 **Welcome and Opening**

Invited Lectures (Chairman R. Zaera)

10:15 (opening lecture)

**A. Rusinek, T. Fraś, T. Jankowiak,
R.B. Pęcherski, G. Sutter, G. List**

Discussion about friction effect under quasi-static and dynamic loading, modelling and applications

11:15-11:45 (Coffee break)

11:45 (invited lecture)

K. Gałka and A. Gałka

Explosive cladding of metals technology – selected aspects of industrial application

13:00-15:00 (Lunch time)

Session I (Chairman A. Rusinek)

15:00

R. Zaera and A. Soler

Aerodynamic effects in spider orb-web design

15:30

M. B. Jabłońska, A. Płachta

Mechanical properties and microstructure analysis of high manganese steel after dynamic deformation

16:00

**L. Mazurkiewicz, J. Małachowski and
P. Baranowski**

Sandwich blast protective panel – optimization study

16:30-16:45 (Coffee break)

Session II (Chairman Z. Nowak)

16:45

P.W. Sielicki

A rapid prediction of blast wave properties:
empirical approach

17:15

M. Schwab, M. Todt and H.E. Pettermann

Simulation of ply damage and delamination in
laminated composites under impact loading

17:45

C. Fichera, L. Peroni and M. Scapin

Dynamic high temperature behaviour of heavy
sintered materials

Thursday, 26.06

Invited Lecture (Chairman R.B. Pęcherski)

9:00 (invited lecture)

K. Nalepka

Modeling microstructure of copper-sapphire
nanocomposites

10:00-10:30 (Coffee break)

Perzyna Session (Chairman T. Łodygowski)

10:30 (invited lecture)

W. Sumelka

Fractional calculus for continuum mechanics -
theory, applications and future tasks

11:30

K. Janc, J. Tarasiuk, A.S. Bonnet,

P. Lipiński

Method describing heterogeneity of anisotropy in
two and three dimensional structure

12:00

**M. Rodríguez-Millan, C. Santiuste,
E. Giner and H. Miguélez**

Numerical analysis of the anisotropy of
cortical bone in orthogonal cutting

12:30

**W. Moćko, J. Janiszewski,
J. Radziejewska and M. Grązka**

Analysis of the 6082-T6 aluminium alloy damage
under classic and symmetric
Taylor test conditions

13:00-14:00 (Lunch time)

Friday, 27.06

Session III (Chairman W. Sumelka)

09:00

**T. Fraś, C. Kerisit, B. Reck, T. Wolf and
C. Doenlen**

Modelling of fragment simulating projectile (fsp)
penetration into aluminum plates

09:30

J.Pernas-Sánchez and J. López-Puente

Failure envelope for ice based on Burzynski
criteria

10:00

**W. Kpobie, N. Bonfoh, C. Dreistadt,
M. Fendler and P. Lipinski**

Multi-site micromechanical modelling of thermo-
elastoplastic composites: application
to flip-chip microelectronic assemblies

10:30-11:00 (Coffee break)

Session IV (Chairman W. Moćko)

11:00

D. Lumelskyy, J. Rojek, R.B. Peçherski, F. Grosman and M. Tkocz

Numerical study of an effect of friction in Nakazima formability test

11:30

M. Nowak

Application of periodic unit cell for modelling of porous materials

12:00

F. Grosman, M. Tkocz and A. Płachta

Unique research potential of the Institute of Metals Technology at the Silesian University of Technology

12:30

Z. Nowak, M. Nowak and R.B. Peçherski

Numerical simulation of metal forming processes with application of modified elastic-plastic model

13:00

M. Nowak, Z. Nowak and R.B. Peçherski

Energy-based multisurface limit criteria in application for modelling and simulation of metal forming processes

13:30

Closing Ceremony

14:00-15:30 (Lunch)

Publications

We will encourage all the authors to submit **full length papers** after the conference for publication according to a usual peer review procedure in ***Engineering Transactions***.

<http://et.ippt.pan.pl/>