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EMRS SYMPOSIUM

Materials sciences and their applications to Homeland Security

Warsaw 14 – 15 September 2010.

Faculty of Materials Sciences Engineering, Warsaw University of Technology, Poland

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Under the sponsorship of :

A- The US Department of Homeland Security:

B The European Academy for Sciences and Arts:

D- The UNESCO

E- The Secretary General of the Council of Europe Parliamentary Assembly

Programme

Tuesday 14th September 2010

Morning

OPENING

- 09 : 00 Urszula NARKIEWICZ, West Pomeranian University of Technology
Institute of Chemical and Environment Engineering, Szczecin,
Poland
- 09 : 05 Jean-Pierre MASSUE, E-MRS past President, Paris, France
Materials and Homeland Security
- 09 : 10 Badaoui ROUHBAN, UNESCO, Paris
Unesco Policy for disasters Prevention
- 09 : 25
- 09 : 40 George SOLOMOS, European Commission, Joint Research Centre,
Institute for the Protection and Security of the Citizen , Laboratory for
Structural Assessment, Ispra, Italy
**Main EU priorities concerning Research Programmes on
Homeland Security**
- SESSION 1 INTRODUCTORY REPORTS**
- 09 : 55 **Security analysis**
**Reducing the Risk of Domestic Nuclear Terrorism through
Research and Development**
Joel RYNES, Transformational and Applied Research Directorate,
DNDO, United States
- 10 : 30 **Coffee Break**
- 10 : 45 **Finmeccanica Approach on Security Research and 7th
Framework Programme Security Experience**
Luca GIANNICCHI, Finmeccanica, Rome, Italy

- 11 : 05 **Nano-Materials Sciences and Technologies : Security and Safety**
Marcel VAN DE VOORDE, University of Technology Delft, the Netherlands
- 11 : 35 **Dual-use materials and Technology in Research and role of dual-use in WMD Proliferation**
Grzegorz GAWLIK, Polish Academy of Science, Warsaw, Poland
- 12 : 00 **The Crescendo Project and Homeland Security**
Jean-Louis SZABO, Co-ordinator CRESCENDO Project, Europe CEA, Saclay, France
- 12 : 20 **Lunch**
- SESSION 2: CONTRIBUTION OF NEW MATERIALS, IN PARTICULAR NANO-MATERIALS, TO IMPROVE RISK PREVENTION, RESILIENCE, WARNING, CRISIS MANAGEMENT, AND REHABILITATION, PERSONAL PROTECTION EQUIPMENTS**
Chairman: Herrmann GRIMMEISS, EMRS past President, University of LUND, Sweden
- 14 : 00 **New solutions for Design or Ergonomic Ballistic Body Armours**
J. POLAK, W. BLASZCZYK, H. STRUSZCZYK, Institute of Security Technology , Moratex, Lodz, Poland
- 14 :20 **Needs of the Polish Police with regard to personal protective equipment and training equipment**
D BUKOWIECKA, the Higher Police School, Szczytno, Poland
- 14:40 **Design of phase percolated composites for passive protection applications**
Paulina CHABERA, Univesity of Warsaw, Poland
- 15 00 **Research against CBRN-E terrorism: a real opportunity for materials science**
Laurent OLMEDO, CEA, DAM/DSNP ARPAJON, Bruyère le Chatel, France
- 15 : 30 **Coffee Break**
- 15 : 50 **Nano-trace : process of physical marking by crystals with effect of memory to admit cultural or industrial property**
M. SCHVOERER, C. NEY, S DUBERNET, N COLMANT-DE-KOCK, Ph SPEAKART, J-P MASSUE, C. OLLAGNIER, CNRS, Inst de Recherche sur les matériaux du patrimoine culturelUniversity Bordeaux 3, France, Association Science et Patrimoine, FER-PACT, Bègles, France, Tamines, Belgium, MT, Bruxelles, Belgium
- From Cancer Imaging to Bank Notes Control**
G.POURROY, D.FELDER-FLESCH, S.BEGIN-COLIN, M.KUENY-STOTZ, L.TRUONG-PHUOC*, J. CHAMBRON, H.SIMON, M.SOWINSKA**,P.POULET, F. X. BLE, F.PELLIER***, G.VERTESY, A. GASPARICS****
* Institut de Physique et Chimie des Matériaux de Strasbourg(IPCMS), France
** EURORAD S. A., Strasbourg, France

*** Strasbourg University, Faculty of Medicine, Lab. LINC, France
 **** Research Institute for Technical Physics and Material Sciences,
 Budapest, Hungary
 (Partners in an E.U. Project "NANOMAGDYE (FP7, HEALTH, Ref
 214032)

SESSION 3: MATERIAL SCIENCES AND TECHNOLOGIES FOR DETECTION OF WEAPONS OR HAZARDOUS SUBSTANCES INFORMATION TECHNOLOGY AND COMMUNICATION AND "SMART CONTAINERS" FOR TRANSPORT ESPECIALLY TECHNOLOGIES FOR LARGE OBJECTS IN TRUCKS
 Chairman: European Space Agency Representative (t.b.c.)

- 16 : 15 **New Developments of wireless Systems, Circuits and THZ sensor for Security applications**
 Wolfgang MEHR, Leibnitz Institute for Innovation for High Performance Microelectronics (IHP), Francfort, Germany
- 16 : 35 **Airport imaging with very low field NMR**
 Michelle ESPY, NMR, Magviz, LosAlamos, USA (t.b.c.)
- 17 : 00 **Bio Threat Agents**
 Jaroslaw MAJEWSKI, National Laboratory, Los Alamos, USA
- 17 : 20 **Data ownership right and private life compliance guarantee coming with Nanotechnologies impact on Information and Communication System evolutions.**
 M.SELLIER, CRESTIN, M CHAKIL, M. JUDDE, Centre de la Sécurité Industrielle et Commerciale, Paris, France
- 17 : 40 **Police mobile command centre**
 R. CZESCIK, The Higher Police School Institute of Prevention Studies, SZCZYTNO, Poland
- 18 : 00
- 18 : 20 **End of the Session**

Wednesday 15th September 2010

SESSION 4: AREA SURVEILLANCE AND PERIMETER/BORDER PROTECTION
 this would include surveillance of public spaces to detect unusual behaviour, and of remote borders : specific contribution of space technologies
 Chairman: Representative of DNDO, USA

- 08 : 30 Intelligent Personal Radiation Locator (IPRL) Characterization Methodology**
 Timothy SWEENEY (DNDO)
- 08 : 50 Energy Infrastructure safety (nuclear power, hydroelectric dams, wind mills, refineries) (nuclear forensics)**
 Carol BURNS National Laboratory, Los Alamos, USA
- 09 : 10 Stand Off Radiation Detection System (SORDS) Analysis Results**
 Austin KUHN (DNDO)
- 09 : 30 Target-linked Radiation Imaging System**
 Nils Krahnstoever (DNDO)

- 09:50 **Radiation Detector Materials Applicable for Area Surveillance**
Austin KUHN (DNDO)
- 10:10 **localisation-Identification of radioactive sources**
C.P. Lambropoulos, Projet COCAE, Technological Educational Institute of Halkida (TEI), Greece
- 10:30 **Coffee Break**
- 10:50 **Applying advanced Solid State Nuclear Radiation Detector Technology for Public Production**
R. SOREGENFREI, M. FIEDERLE, A. ZWERGER, A. FAULER *
M. SOWINSKA, H. SIMON **, S. HSU***
*FMF University and XIE Freiburg, Germany
** EURORAD, Strasbourg, France
***DOSITEC HOPKINTON, USA
- SESSION 5: PROTECTION AND RESILIENCE OF BUILDINGS AND LARGE FACILITIES AGAINST NATURAL AND TECHNOLOGICAL RISKS AND TERRORISM**
Chairman : Zoran MILUTINOVIC, Institute of Earthquake Engineering and Engineering Seismology, University „St. Cyril and Methodius“, SKOPJE, Macedonia
- 11:10 **General Aspects on Protection and Resilience of Buildings and large Facilities against Hazards and Threats**
Zoran MILUTINOVIC, Institute of Earthquake Engineering and Engineering Seismology, University „St. Cyril and Methodius“, SKOPJE, Macedonia
- 11 :30 **Architectural safety** (tbc)
Rudy MATALUCCI, Sandia National Laboratories
- Importance of Materials for the Protection of the cultural Heritage in seismic Areas**
Ferruccio FERRIGNI, European University Center for the cultural Heritage (CUEBC), Ravello, Italy
- 11 : 50 **Experimental and numerical Simulation activities with special focus on the Assessment of explosion effects in a train station**
George SOLOMOS, European Commission, Joint Research Centre, Institute for the Protection and Security of the Citizen , Laboratory for Structural Assessment, Ispra, Italy
- 12 : 10 **ROUND TABLE DISCUSSION AND CONCLUSIONS** by :
à Hermann GRIMMEISS, E-MRS past President, University of Lund, Sweden
13 : 00 Andrzej MYCIELSKI, Institute of Physics Polish Academy of Sciences, Warsaw, Poland
Gabriel CREAN, Scientific Director, Commissariat à l'Energie Atomique (CEA), Saclay, France
- Afternoon PLENARY E-MRS FALL MEETING**