

**PROGRAM OF THE ELEVENTH JAPANESE-MEDITERRANEAN WORKSHOP
ON APPLIED ELECTROMAGNETIC ENGINEERING FOR MAGNETIC,
SUPERCONDUCTING, MULTIFUNCTIONAL AND NANO MATERIALS (JAPMED'11)**

TUESDAY, JULY 16th

14:00 – 16:00 **Registration**

16:00 – 17:00 Opening Session

Chair: N. Gomidze

16:00 – 16:30 **Welcome Address:** Honorary Chairman of the JAPMED'11, Prof. A.G. Mamalis
Welcome Address: Chairman of the JAPMED'11, Prof. M. Enokizono
Welcome Address: President of the JSAEM, Prof. Y. Ido
Welcome Address: Rector of the Batumi Shota Rustaveli State University, Prof. M. Khalvashi
Welcome Address: Government Chairman of the Ajara Autonomous Republic, Mr.T. Rizhvadze
Welcome Address: Minister of Education, Culture and Sport, Ms. M. Khajishvili
Welcome Address: Chairman of FLOGEN Star OUTREACH, Dr. F. Kongoli

16:30 – 17:00 **Plenary Presentation (111): Advanced Manufacturing of Advanced Materials from Macro- to Nanoscale under Static to Shock Loading: Principles and Industrial Sustainable Applications**

A.G. Mamalis
PC-NAE, NCSR "Demokritos", Athens, Greece

17:00 – 18:30 Oral Session A: High Strain-Rate Phenomena / Impact to Shock Loading

Chair: E. Maragakis

17:00 – 17:30 **Keynote Presentation (35): The Effect of Velocity, Imperfection and Material Models on the Crushing of Aluminum Corrugated Structure**

M. Güden, M. Sarıkaya, İ. Canbaz, A. Taşdemirci
Izmir Institute of Technology, Turkey

17:30 – 17:50 **A1 (87): Structure and Mechanical Properties of Multilayer Metal-Intermetallic Composites Fabricated by Explosive Welding and Annealing**

Z. Sheng, PW Chen, Q. Zhou
Beijing Institute of Technology, PR of China

17:50 – 18:10 **A2 (101): Advanced Explosive Metalworking Industrial Technologies**

A. Szalay, A.G. Mamalis, I. Zador
S-Metalltech 98 Materials R&D Ltd., Budapest, Hungary

18:10 – 18:30 **A3 (33): Syntheses of Ti-Al-Si-B-C Nanocomposites by Mechanical Alloying and Explosive Compaction**

M. Chikhradze, F D.S Marquis, N. Chikhradze, G. Abashidze, A. Gigineishvili, T. Bzhalava
Georgian Technical University, Tbilisi, Georgia

19:30 – 22:00 **Welcome Informal Dinner and Entertainment (Beachfront)**

WEDNESDAY, JULY 17th

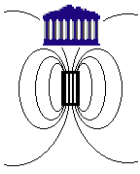
08:00 – 08:30 **Registration**

08:30 – 10:40 Oral Session B: Electromagnetic Engineering

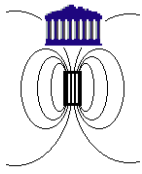
Chair: T. Prikhna

08:30 – 09:00 **Keynote Presentation (85): Vector Magnetic Hysteresis Characteristics of Electrical Steel Sheet**

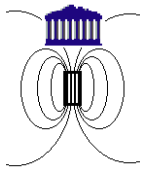
M. Enokizono, D. Wakabayashi, Y. Kai



- 09:00 – 09:20 *Vector Magnetic Characteristic Technical Laboratory, Usa-city, Japan*
B1 (12): Diagnosis of Dynamic Eccentricity Fault in Inverter-Fed Permanent Magnet Synchronous Motor Based on Zero Sequence Voltage Component
J. Faiz, M.S. Bozorgian, E. Mazaheri-tehrani
University of Tehran, Tehran, Iran
- 09:20 – 09:40 **B2 (99): Noncontact Iron Loss Measurement of Motor Stator Core Using Radiation Thermometer in the Atmosphere**
D. Wakabayashi, M. Oka, M. Enokizono
Nippon Bunri University, Oita, Japan
- 09:40 – 10:00 **B3 (23): Simple Method for Micro Flow Generation Using Magnetic Fluid and Small Cubic Permanent Magnet**
S.Sudo, M.Ito
Akita Prefectural University, Japan
- 10:00 – 10:20 **B4 (40): Iron Loss Evaluation for a Small High-Efficiency Motor Stator Core Made of an Ultrathin Electrical Steel Sheet under PWM Inverter Excitation Using the Stator Windings Excitation Method**
M. Oka, M.Enokizono, D. Wakabayashi, H. Kiyotake
National Institute of Technology, Oita, Japan
- 10.20 – 10.40 **B5 (27): Characteristics Comparison of Self-Propelled Rotary Actuator in Consideration of Shape and Rolling Direction of Steel Sheets**
N. Soda, T. Kawano, M. Enokizono
Ibaraki University, Japan
- 10:40 – 11:10 Coffee Break**
- 11:10 – 13:20 Oral Session C: Applications in Energy and Transportation - I**
Chair: M. Enokizono
- 11:10 – 11:40 **Keynote Presentation (64): Structure and Pinning Centers in MgB₂ Bulks, Wires, Thin Films and MT-YBCO**
T. Prikhna, M. Eisterer, V. V. Romaka, A. G. Mamalis, A. Jouline, J. Rabier, S. S. Ponomaryov, M. V. Karpets, M. Rindfleisch, M. Tomsic, A.V. Kozyrev, V.E. Moshchil, A.V. Shaternik
Bakul Institute for Superhard Materials of the National Academy of Sciences of Ukraine (NASU), Kiev, Ukraine.
- 11:40 – 12:00 **C1 (100): Oscillation Amplitude Reduction of a High-T_c Superconducting Levitation System by an Electromagnetic Shunt Damper Coupled Nonlinearly**
T. Sugiura
Keio University, Yokohama, Japan
- 12:00 – 12:20 **C2 (66): Estimation Scintillation Index on a Superconductor Receiver for Gaussian Laser Beam Propagated Trough Random Phase Screen**
N. Kh. Gomidze, I. N.Jabnidze, K.A.Makharadze, M.R.Khajishvili, L.G.Kalandadze, O.Nakashidze, E.N.Mskhaladze
Batumi Shota Rustaveli State University, Batumi, Georgia
- 12:20 – 12:40 **C3 (115): Parameter Identification of Nonlinear Dynamic Systems of Industrial Processes**
B. Shanshiashvili, N. Kavlashvili
Georgian Technical University, Tbilisi, Georgia
- 12:40 – 13:00 **C4 (36): Novel Electrical Approach to Protect PV Modules under Various Partial shading situations**
H. Hanifi, M. Pander, B. Jaeckel, J. Schneider, A. Bakhtiari, W. Maier
Fraunhofer Center for Silicon Photovoltaics CSP, Halle (Saale), Germany
- 13:00 – 13:20 **C5 (31): Investigation of Thermal Insulation for Static Cryostats of HTSC Devices**
L.I. Chubraeva, S.S. Timofeyev
Institute of Electrophysics and Electric Power Engineering of RAS, Saint-Petersburg, Russia
- 13:20 – 14:50 Lunch Break**



- 14:50 – 16:30 Oral Session D: Applications in Energy and Transportation - II**
Chair: P. Kervalishvili
- 14:50 – 15:20 **Keynote Presentation (60): Stress Distribution Monitoring and Rehabilitation in Ferrous Steels**
S. Aggelopoulos, X. Vourna, A. Ktena, A. G. Mamalis, E. Hristoforou
National Technical University of Athens, Greece
- 15:20 – 15:40 **D1 (98): Refunction Techniques of Electrical Steel Sheets by Secondary Current Heating for High Efficiency Motors**
Y. Tsuchida, M. Enokizono
Oita University, Oita, Japan
- 15:40 – 16:00 **D2 (55): Development of Travelling Wave Propulsion Mechanism with Permanent Magnet Vibration Motor**
K. Kasuga, I. Murakami, M. Ono, Y. Ando
Gunma University, Kiryu, Japan
- 16:00 – 16:20 **D3 (46): Transport Characteristics of a Transport Device Composed of Two Magnetically-Driven Systems Using a Temperature-sensitive Magnetic Fluid**
Y. Ido, Y. Iwamoto, G. Ichinose, K. Odai
Nagoya Institute of Technology, Japan
- 16:20 – 16:40 **D4 (26): Torque Properties Analysis of Magnetic Harmonic Gear with Stackable Structure**
L. T. Kurahashi, Y. Ando, R. Takei, K. Yonezawa, I. Murakami, A. Tomura
Gunma University, Tenjin-cho, Kiryu, Japan
- 16:40 – 17:00 **D5 (57): Development of 2 DOF Linear Oscillatory Actuator for Vibration Control**
F. Kitayama, R. Kondo
Ibaraki University, Japan
- 17:00 – 17:30 Coffee Break**
- 17:30 – 19:30 Oral Session E: Multifunctional, Composite and Magnetic Nanomaterials**
Chair: M. Güden
- 17:30 – 17:50 **E1 (107): Fatigue Corrosion Behavior of NiTi Shape Memory Alloy**
M. Mohajeri, H. Castaneda, D.C. Lagoudas
Texas A&M University, College Station, TX, USA
- 17:50 – 18:10 **E2 (105): Modeling of Internal Damage Evolution During Actuation Fatigue in Shape Memory Alloys**
F.R. Phillips, D.T. Martin, D.C. Lagoudas
Texas A&M University, College Station, TX, USA
- 18:10 – 18:30 **E3 (38): Ceramic Composites Based on Functionalized Graphene Oxide and Alumina**
G.G. Bokuchava, E.E. Sanaiab, T.N. Archuadze, T.V. Kuchukhized, N.T. Jalagonia
Ilia Vekua Sukhumi Institute of Physics and Technologies, Tbilisi, Georgia
- 18:30 – 18:50 **E4 (30): Studying Electro-Physical and Mechanical Properties of SNO₂-SB₂O₃-C Ceramic-Based Composite Material**
S. S. Dobromyslov, V. I. Kirko, V.A. Razumovskaya
Siberian Federal University, Krasnoyarsk, Russia
- 18:50 – 19:10 **E5 (39): Influence of the Size, Shape and Concentration of Magnetic Particles on the Optical Properties of Nano Nickel Thin Films**
L.G. Kalandadze, O.M. Nakashidze, N.KH. Gomidze, I.N. Jabnidze
Batumi Shota Rustaveli State University, Batumi, Georgia
- 19:10 – 19:30 **E6 (68): Rheological Properties of Magnetized Bidisperse Magnetorheological Fluids Containing Needle-Like Particles**
Y. Iwamoto, T. Koroki, Y. Ido, H. Yamamoto, H. Nishida, Y. Fujii, T. Deguchi
Nagoya Institute of Technology, Nagoya, Japan



THURSDAY, JULY 18th

09:00 – 11:00 Oral Session F: Advanced Industrial Technologies

Chair: N. Chikhradze

- 09:00 – 09:20 **F1 (108): Generating Analytical Fragility Curves for Gypsum Partition Walls with Different Aspect Ratios**
E. Maragakis
University of Nevada, Reno, Nevada, USA
- 09:20 – 09:40 **F2 (67): Electrical Consolidation under Pressure for Al₂O₃ and WC, SiC Nanodisperse Powders**
E.S. Gevorkyan, A.G. Mamalis, Y.G. Gutsalenko
Ukrainian State University of Railway Transport, Kharkov, Ukraine
- 09:40 – 10:00 **F3 (78): Design of High Speed Interior Permanent Magnet Type Motor for Turbo-Machinery**
Y. Okada, F. Kitayama R. Kondo
Ibaraki University, Hitachi, Japan
- 10:00 – 10:20 **F4 (44): Influence of Plasma Based Ion Implantation and Deposition Method on Structure, Internal Stress, Mechanical Properties of Nano-Crystalline Bioinert ZrN Coatings**
A. Taran, I. Garkusha, V. Taran, R. Muratov, V. Starikov, A. Baturin, S. Romaniuk, A.G. Mamalis
Institute of Plasma Physics of NSC KIPT, Kharkov, Ukraine
- 10:20 – 10:40 **F5 (13): Neutron Sensors Based on Silicon-Graphene Nanosystems Enriched by Boron¹⁰ Isotope**
P. Kervalishvili, R. Turmanidze, T. Berberashvili, L. Chakhvashvili
Georgian Technical University, Tbilisi, Georgia
- 10:40 – 11:00 **F6 (71): The Effect of Magnetic Field on the Destruction Petroleum Emulsion**
N. Mamulaishvili, G. Partskhaladze, G. Chavleshvili, O. Janelidze
Batumi Shota Rustaveli State University, Georgia

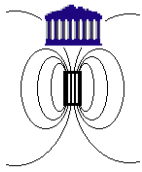
11:00 – 11:30 Coffee Break

11:30 – 13:00 Oral Session G: Material Synthesis, Measurements and Characterization

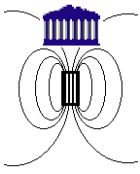
Chair: Y. Ido

- 11:30 – 12:00 **Keynote Presentation (25): Strong Effect of Multiplicity Fluctuations in Rare-Earth Cobaltites on Magnetic, Electronic and Crystal Structure Properties**
S.G. Ovchinnikov, V.A. Dudnikov, Yu.S. Orlov, M. V. Gorev
Kirensky Institute of Physics, Federal Research Center, Krasnoyarsk, Russia
- 12:00 – 12:20 **G1 (97): Characterization of Organic Liquids Under Confinement: A Study of Acetonitrile**
M. Orhan, A. Kinaci, T. Cagin
Texas A&M University, College Station, TX, USA
- 12:20 – 12:40 **G2 (92): Polyvalent Iron Oxide Magnetic Nanopowders Synthesized by Electroerosion Dispersion for Microwave Absorbing Coatings**
T. Prikhna, M. Monastroyov, A.G. Mamalis, B. Halbedel, S.S. Ponomaryov, V. Moshchil, O. Prysiazhna
Bakul Institute for Superhard Materials of the National Academy of Sciences of Ukraine (NASU), Kiev, Ukraine
- 12:40 – 13:00 **G3 (15): Clusters – Particles Balance in Matter by Dynamic Fractals**
A. Bakhtiari, T. Berberashvili, P. Kervalishvili
Georgian Technical University, Tbilisi, Georgia

13:00 – 14:30 Lunch Break



14:30 – 16:10	Oral Session H: Sustainability: Principles and Applications Chair: A.G. Mamalis
14:30 – 15:00	Keynote Presentation (102): A Sustainable World Population J. Ramsden, A.A. Mamali, N.T. Athanassoulis <i>The University of Buckingham, England</i>
15:00 – 15:30	Keynote Presentation (91): Science and Technology–The Grand Disruptors and Solution Providers F. Kongoli <i>FLOGEN Star OUTREACH, Canada</i>
15:30 – 15:50	H1 (103): Prosumer Communities Piloting Smart Cities Development: The Case of the First Near-Zero Energy Smart Home of Greece N.T. Athanassoulis, A. Tsakanikas, D. Tzovaras <i>National Technical University of Athens, Greece</i>
15:50 – 16:10	H2 (104): Statistical Analysis of the Global Competitiveness Index (GCI) of Georgia R. Turmanidze, P. Dašić, G. Popkhadze <i>Georgian Technical University, Tbilisi, Georgia</i>
16:10 – 16:40	Coffee Break / Conference Photo
16:40 – 19:00	Poster Session (P) Chair: T. Sawada, R. Turmanidze, P. Kervalishvili
	P1 (96): Overhead Transmission Lines Impact Evaluation on Human Presence T. Damatopoulou, A.G. Kladas <i>National Technical University of Athens, Greece</i>
	P2 (95): Optimal Design Methodology Based on Sensitivity Analysis for Marine Electric Propulsion Salient Pole Synchronous Motors A.P. Moschoudis, A. G. Kladas, G.J. Tsekouras <i>National Technical University of Athens, Greece</i>
	P3 (94): Development of Vehicle Detection System Using Geomagnetic Level Sensor K. Oka, S. Kiyofuji, A. Harada, Y. Kumagai <i>Kochi University of Technology, Japan</i>
	P4 (86): C-V Characterization and Electric Parameters of ZrO₂ Received by UV Stimulated Plasma Anodizing A. Bibilashvili, Z. Kushitashvili <i>Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia</i>
	P5 (83): Radiation Modified Ion-Implanted Balls of Ball Bearings A.I. Guldamashvili, Yu.I. Nardaia, Ts.M. Nebierdze, E.E. Sanaia A.V. Sichinava <i>Ilia Vekua Sukhumi Institute of Physics and Technologies, Tbilisi, Georgia</i>
	P6 (82): Obtaining of Ultrafine Powder Composites of Tungsten, Molybdenum, Titanium and Boron Carbides Using Liquid Precursors N. Barbakadze, K. Sarajishvili, R. Chedia, L. Chkhartishvili, O. Tsagareishvili, A. Mikeladze, M. Darchiashvili, V. Ugrekheldidze <i>Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia</i>
	P7 (81): Study of the Behavior of Polymer Concrete to Shock Loading N. Chikhradze, G. Abashidze, D. Tsverava, S. Kvinikadze <i>LEPL Grigol Tsulukidze Mining Institute, Tbilisi, Georgia</i>
	P8 (62): Magnetic Particles Retaining on Open and Closed Systems G. Banis, E. Mangiorou, P. Tselou, A. Ferraro, A. G. Mamalis, E. Hristoforou <i>National Technical University of Athens, Greece</i>
	P9 (61): A First Comparison Between the Microwave Assisted Co-Precipitation Technique and the Typical Solvothermal Method for the Preparation of Fe₃O₄/β-Cyclodextrin Core/Shell Type Nanoparticles M. Kourinou, I. Kokkinopoulos, M.E. Kouli, A. Ferraro, A.G. Mamalis, E. Hristoforou <i>National Technical University of Athens, Greece</i>



P10 (59): Visible MCD Spectroscopy and Nature of Room Temperature Ferromagnetism in Hydrogenated Co - and (Co+Al) - Doped ZnO Films

Yu.E. Samoshkina, I.S. Edelman, D.A. Petrov, Hsiung Chou, S.G. Ovchinnikov
Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia

P11 (58): Development of Flexible Fingertip Using Magnetic Functional Fluid

N.Yamashita, I. Murakami, Y. Ando, Long Bui Si
Gunma University, Kiryu, Japan

P12 (56): Does Evolutionary Improvement of Cars is Sufficient to Neutralize their Impact in Pollution and Climate Change or Do We Need a Jump Toward New Technologies?

K. N. Spentzas
Chief Academician Secretary of the EuroMediterranean Academy of Arts and Sciences

P13 (54): Effect of Heat Treatment on the Structure, Magnetic and Thermoelectric Properties Dy_{0.2}Sr_{0.8}CoO_{3-δ}

V. Dudnikov
Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia

P14 (53): Study of Genetic Analysis of Mutations in BRAF, NRAS and HRAS Gene in Thyroid Cancer Patients of Georgia by Using Programming Language

S.A. Elmogheth Madani, I. Gotsiridze
Georgian Technical University, Tbilisi, Georgia

P15 (52): Sustainable Design of Mobile Transilluminator Vein Finder Device

T. Talebifar, I. Gotsiridze
Georgian Technical University, Tbilisi, Georgia

P16 (48): Medical Simulation Training System with Application of Unity

D. Kim, I.Gotsiridze, Z.Gurtskaia
Georgian Technical University, Tbilisi, Georgia

P17 (47): Estimation of Parameters for a Model of Polycrystalline Solar Cells

J.J. Shainidze, L.G. Kalandadze, O.M. Nakashidze, N.KH. Gomidze
Batumi Shota Rustaveli State University, Batumi, Georgia

P18 (45): Impact of Electrohydraulic Processes upon Lightning Protection of the Buildings Constructed on High Water Grounds and Onshore Facilities

M. Tugushi, G. Partskhaladze, M. Loria, G. Chavleshvili, B. Karasiev
Batumi Shota Rustaveli State University, Batumi, Georgia

P19 (42): Impact of Thin Nanotechnology Coatings on the Stress-Strain State of the Cylindrical Cladding Made from Zr-Based Alloys for Nuclear Fuel Elements

Yu. V. Romashov, E.V. Povolotskii, A.G. Mamalis
V.N. Karazin Kharkiv National University, Ukraine, Kharkiv

P20 (32): Electrodynamic Levitation Effect in Vertical HTSC Alternators with Axial Magnetic Flux

L.I. Chubraeva, S.S. Timofeyev, V.A. Lazerko
Institute of Electrophysics and Electric Power Engineering of RAS, Saint-Petersburg, Russia

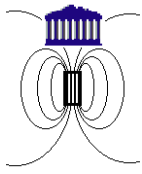
P21 (29): Preparation and Relative Mechanical Strength of Erbium Monoselenide Films

Z. Jabua, A.Gigineishvili, K. Davitadze, T. Minashvili, G. Iluridze
Georgian Technical University, Tbilisi, Georgia

P22 (24): Ultrasonic Propagation Wave Velocity in MR Fluid at Magnetic Field Sweep Rates

R. Kanasashi, Y. Tanaka, T. Sawada
Keio University, Yokohama, Japan

20:30 – 23:00 Conference Dinner



FRIDAY, JULY 19th

09:00 – 10:50 Oral Session I: Biomedical Engineering / Biotechnology

Chair: J. Ramsden

- 09:00 – 09:30 **Keynote Presentation (73): Magnetic Nanoparticles and Nanosystems for Hyperthermy of Diseased Cells**
P. Kervalishvili, T. Berberashvili, A. Papoyan, A. Manukyan
Georgian Technical University, Tbilisi, Georgia
- 09:30 – 09:50 **I1 (90): Dynamic Suspension Characteristics of a Compact Double Stator Axial Gap Motor with Full Magnetic Levitation During Rotary Blood Pump Operation**
M. Osa, T. Masuzawa, E. Tatsumi
Ibaraki University, Japan
- 09:50 – 10:10 **I2 (51): Genetic Analysis of Study Diagnose Mutations in a Gene BRAF, NRAS, KRAS and RET Gene in Thyroid Cancer Patients of Georgia by Matlab Environment**
S.A. Elmogheh Madani, I. Gotsiridze
Georgian Technical University, Tbilisi, Georgia
- 10:10 – 10:30 **I3 (34): Computer Simulation Study of Physical Properties of Nanosized Biostructures**
P.J. Kervalishvili, T.N. Bzhalava
Georgian Technical University, Tbilisi, Georgia
- 10:30 – 10:50 **I4 (63): Design and Thermal Management of Battery Pack for Medical Devices**
M. Yaghoobi, I. Gotsiridze
Georgian Technical University, Tbilisi, Georgia
- 10:50 – 11:20 Coffee Break**

11:20 – 12:30 Closing Session

Chair: A.G. Mamalis

Closing Remarks

Paper Submission

Best Poster Award

Euro-Mediterranean Academy of Arts and Sciences (EMAAS) Ceremony

Shockwaves Cluster

SIPS 2019

JAPMED'12

13:00 – 19:00 Excursion

Batumi – Keda – Makhunceti (Including: Wine Testing / Lunch)