

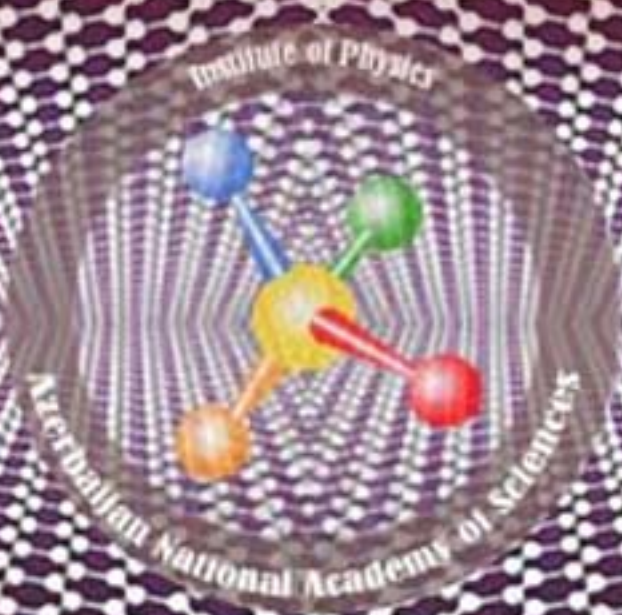
International Conference on Ternary  
and Multinary Compounds

# ICTMC -17

27-30 September, 2010

Conference Halls:

Ramada and Crescent Beach, Baku, Azerbaijan



## CONFERENCE PROGRAM



# September 27 (Monday)

**8:30 ~                      *Registration***

**9:30- 12:50              *Morning tutorials***

**9:30      **Superconductor-insulator transition and localized electron pairs****

Prof. Vsevolod F. Gantmakher

*Institute of Solid State Physics, Chernogolovka, Russia*

**10:30-10:40              *Break***

**10:40      **Introduction to nanotechnology based on carbon nanotubes****

Prof. Yoshikazu Nakayama

*Osaka University, Japan*

**11:40-11:50              *Break***

**11:50      **Opto-electronic devices fabricated by printing technology: light emitting diodes, thin film transistors and solar cells****

Prof. Hiroyoshi Naito

*Osaka Prefecture University, Japan*

**12:50-14:00              *Break for lunch***

**14:00- 16:10              *Afternoon tutorials***

**14:00      **Spintronics for next generation innovative devices****

Prof. Katsuaki Sato

*Japan Science and Technology Agency*

**15:00 -15:10              *Break***

**15:10 Neutrons and photons in photovoltaic materials  
research**

Prof. Susan Schorr

*Free University Berlin, Germany*

**16:10 – 19:00** *Free time*

**19:00 ~** *Welcome party*

# September 28 (Tuesday)

## Oral presentations

8:30~

*Registration*

**9:30- 11:40**

### **Morning session**

Chairpersons:

Prof. K. Sato (*Japan Science and Technology Agency*)

Prof. P. Rogl (*Vienna University, Austria*)

9:30

I1-1

### **Epitaxial graphene on SiC (0001): growth, electronic structure, and interface engineering**

Th. Seyller

*Friedrich-Alexander-Universität Erlangen-Nürnberg, Lehrstuhl für Technische Physik, Germany*

10:00

I1-2

### **Mechanism of “controlled atomic defects”: extension to the ternary systems**

E.I. Rogacheva

*National Technical University “Kharkov Polytechnic Institute”, Kharkov, Ukraine*

10:20

O1-1

### **Ultrathin CIGS solar cells from controlled chemical etching of state of the art co-evaporated absorbers**

N. Naghavi<sup>1</sup>, Z. Jehl<sup>1</sup>, F. Erfurth<sup>1</sup>, L. Lombez<sup>1</sup>, I. Gerard<sup>2</sup>, M. Bouttemy<sup>2</sup>, P. Tran-Van<sup>2</sup>, A. Etcheberry<sup>2</sup>, G. Voorwinden<sup>3</sup>, B. Dimmler<sup>3</sup>, W. Wischmann<sup>4</sup>, M. Powalla<sup>4</sup>, J.F. Guillemoles<sup>1</sup>, D. Lincot<sup>1</sup>

<sup>1</sup> *Institut de Recherche et Développement sur l’Energie Photovoltaïque (IRDEP-UMR 7174 EDF-CNRS-ENSCP), 6 quai Watier, 78401 Chatou Cedex, France*

<sup>2</sup> *ILV - UMR 8180, Université de Versailles St Quentin, 45 Av. des Etats Unis, 78035 Versailles CEDEX*

<sup>3</sup> *Wuerth Elektronik Research GmbH, Industriestr. 4, 70565 Stuttgart, Germany*

<sup>4</sup> Zentrum für Sonnenenergie- und Wasserstoff-Forschung (ZSW), Industriestr. 6, 70565 Stuttgart, Germany

**10:40 O1-2 Room-temperature ferromagnetism in (Zn,Mn,Sn)As<sub>2</sub> thin films applicable to InP-based spintronics devices**

N. Uchitomi, J.T.Asubar, H.Oomae, H.Endoh and Y.Jinbo  
*Department of Electrical Engineering, Nagaoka University of Technology, Japan*

**11:00 O1-3 Sn<sub>1-x</sub>Pb<sub>x</sub>S nanorods on isochemical substrates for thermoelectric and photovoltaic application**

K. Bente<sup>1</sup>, V. Lazenka<sup>1</sup>, D. Unuchak<sup>1</sup>, G. Wagner<sup>1</sup>, R. Kaden<sup>1</sup>, V. Gremenok<sup>2</sup> and V. Ivanov<sup>2</sup>  
<sup>1</sup>*Institut für Mineralogie, Kristallographie und Materialwissenschaft, University of Leipzig, Germany*  
<sup>2</sup>*Scientific-Practical Materials Research Centre of the National Academy of Sciences of Belarus*

**11:20 O1-4 Preparation and electrical properties of ZnO/CdS/Cu(In,Zn)Se<sub>2</sub> (ZCIS) heterojunctions**

V.A. Ivanov<sup>1</sup>, V.F. Gremenok<sup>1</sup>, V.B. Zalesski<sup>2</sup>, V.I. Kovalevski<sup>2</sup>, K. Bente<sup>3</sup>  
<sup>1</sup>*Scientific-Practical Materials Research Centre of the National Academy of Sciences of Belarus*  
<sup>2</sup>*Institute of Physics, National Academy of Sciences of Belarus*  
<sup>3</sup>*Institut für Mineralogie, Kristallographie und Materialwissenschaft, University of Leipzig, Germany*

**11:40 ~ Opening ceremony**

**13:00-14:00 Lunch**

**14:00- 15:00**      **Afternoon session**

Chairpersons:

Prof. H. Dittrich (*University of Salzburg, Austria*)

Prof. T. Wada (*Ryukoku University, Japan*)

**14:00 O1-5 Epitaxial growth of chalcopyrite CuInS<sub>2</sub> films on GaAs (001) substrates by evaporation method with elemental sources**

N. Tsuboi<sup>1,2</sup>, T. Tamogami<sup>3</sup> and S. Kobayashi<sup>1</sup>

<sup>1</sup>*Faculty of Engineering, Niigata University, Japan*

<sup>2</sup>*Center for Transdisciplinary Research, Niigata University, Japan*

<sup>3</sup>*Graduate School of Sci. and Tech., Niigata University, Japan*

**14:15 O1-6 Influence of the preparation conditions on the properties of Cu(In,Ga)(S,Se)<sub>2</sub> thin films obtained by two-step growth**

E.P. Zaretskaya<sup>1</sup>, V.F. Gremenok<sup>1</sup>, N.N. Mursakulov<sup>2</sup>,  
N.N. Abdulzade<sup>2</sup>, Ch.E. Sabzaliyeva<sup>2</sup>

<sup>1</sup>*Scientific-Practical Materials Research Centre of the National Academy of Sciences of Belarus*

<sup>2</sup>*Institute of Physics, Azerbaijan National Academy of Sciences, Azerbaijan*

**14:30 O1-7 Ternary compounds in Fe-Mo-C spinning films and equilibrium alloys: experiment and thermodynamic modelling at high-temperatures**

T.A. Velikanova<sup>1</sup>, M.V. Karpets<sup>1</sup>, P.G. Agraval<sup>2</sup>, M.A. Turchanin<sup>2</sup>

<sup>1</sup>*Institute for Problems of Materials Science NASU, Ukraine*

<sup>2</sup>*Donbass State Engineering Academy, Ukraine*

**14:45 O1-8 Peculiarities of linear thermal expansion of CuInS<sub>2</sub> single crystal**

A. Nagaoka<sup>1</sup>, K. Yoshino<sup>1</sup> and H. Miyake<sup>2</sup>

<sup>1</sup> *Department of Electrical and Electric Engineering, University of Miyazaki, Japan*

<sup>2</sup> *Department of Electrical and Electric Engineering, Mie University, Japan*

**15:00 -15:10 Coffee break**

**15:10-16:50 Afternoon session**

Chairpersons:

Prof. N. Mamedov (*Institute of Physics, NAS, Azerbaijan*)

Prof. S. Sato (*Hiroshima Synchrotron Radiation Center, Japan*)

**15:10 I2-1 Electronic structure of ternary chain TI chalcogenides studied by photoemission spectroscopy**

K. Mimura

*Department of Mathematical Sciences, Graduate School of Engineering, Osaka Prefecture University, Japan*

**15:40 I2-2 Raman and X-ray diffraction studies of ternary chalcogenides at ambient and high pressure**

H. D. Hochheimer

*Department of Physics, Colorado State University, USA*

**16:10 O2-1 Confocal laser spectroscopy of TlInS<sub>2</sub>, TlGaSe<sub>2</sub> and TlGaS<sub>2</sub> semiconductors-ferroelectrics**

K. Wakita<sup>1</sup>, A. Suzuki<sup>1</sup>, U. Miyamoto<sup>1</sup>, D. Huseynova<sup>2</sup>, Y. Shim<sup>3</sup>, N. Mamedov<sup>2</sup>, O. Alekperov<sup>2</sup>, A. Najafov<sup>2</sup>, and T. Mammadov<sup>2</sup>

<sup>1</sup> *Chiba Institute of Technology, Japan*

<sup>2</sup> *Institute of Physics, National Academy of Sciences, Azerbaijan*

<sup>3</sup> *Osaka Prefecture University, Japan*

**16:30 O2-2 Microscopic investigations of compositional gradients in CIGS by highly spatially and spectrally resolved cathodoluminescence spectroscopy**

M. Müller<sup>1</sup>, F. Bertram<sup>1</sup>, J. Christen<sup>1</sup>, D. Abou-Ras<sup>2</sup>, T. Rissom<sup>2</sup>, Th. Unold<sup>2</sup>, H-W. Schock<sup>2</sup>

<sup>1</sup> *Otto-von-Guericke University Magdeburg, Germany*

<sup>2</sup> *Helmholtz-Center Berlin for Materials and Energy, Germany*

**16:50-17:00**      *Coffee break*

**17:00-18:00**      ***Afternoon session***

Chairperson:

Prof. K. Allakhverdiev (*Institute of Physics, NAS, Azerbaijan*)

**17:00 O2-3 Correlation of the optical properties with  $\epsilon(T)$ -dependence at ferroelectric phase transition in TlInS<sub>2</sub> doped with different impurities**

O.Z. Alekperov, A.I. Nadjafov, N. A. Safarov

*Institute of Physics, National Academy of Sciences, Azerbaijan*

**17:20 O2-4 Optical and structural properties of Zn-Cd-Mn-Se double quantum well systems**

T. Matsumoto, K. Ohmori, K. Kodama, M. Hishikawa, S. Fukasawa, F. Iwasaki, T. Muranaka, and Y. Nabetani  
*Department of Electrical Engineering, University of Yamanashi, Japan*

**17:40 O2-5 Local structural order in amorphous ternary chalcogenide systems: Magnetic resonance approach**

E. Mammadov<sup>1</sup>, D. Bobela<sup>2</sup>, D. Baker<sup>3</sup>, S. Mehdiyeva<sup>1</sup>, and P. C. Taylor<sup>3</sup>

<sup>1</sup>*Institute of Physics, National Academy of Sciences,  
Azerbaijan*

<sup>2</sup>*National Renewable Energy Laboratory, USA*

<sup>3</sup>*Physics Department, Colorado School of Mines, USA*

18:30 ~ Opera

# September 28 (Tuesday)

## Poster Presentations

(posters shall be placed on poster stands by 15:00 and removed from the stands next day between 12:00 and 14:00)

Chairpersons: Prof. E.P. Zaretskaya (*Sci. Practical Materials Research Centre, NAS, Belarus*)

Dr. Z. Jahangirli (*Institute of Physics, NAS, Azerbaijan*)

### 17:00 -18:00 **Poster session 1**

**P1-1 Effects of Y<sub>2</sub>O<sub>3</sub>/CuO co-doping on microstructure and dielectric properties of BaTiO<sub>3</sub>-based ceramics**

T. V. Tarasevich and S. A. Lebedev (*SSPA "Scientific-Practical Materials Research Centre of NAS of Belarus", Minsk, Belarus*)

**P1-2 Initial growth process in the electrochemical deposition of ZnO**

A. Ashida, N. Nouzu, and N. Fujimura (*Graduate School of Engineering, Osaka Prefecture University, Osaka, Japan*)

**P1-3 Growth of multicomponent solid solutions A3B5 containing antimony by metal-organic chemical vapor deposition**

G. S. Gagis<sup>1</sup>, V. I. Vasil'ev<sup>1</sup>, and N.N. Mursakulov<sup>2</sup> (<sup>1</sup>*Ioffe Physico-Technical Institute of the Russian Academy of Sciences, St Petersburg, Russia;* <sup>2</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P1-4 Physical properties of SnS thin films grown by hot wall deposition**

V. Gremenok<sup>1</sup>, D. Unuchak<sup>2</sup>, V. Lazenka<sup>2</sup>, K. Bente<sup>2</sup>, V. Ivanov<sup>1</sup>, S. Bashkirov<sup>1</sup>, I. Tashlykov<sup>3</sup>, A. Turovets<sup>3</sup> (<sup>1</sup>*State Scientific and Production Association «Scientific-Practical Materials Research Centre of the National Academy of Sciences of Belarus», Minsk, Belarus;* <sup>2</sup>*Institut für Mineralogie, Kristallographie und Materialwissenschaft, University of Leipzig, Germany;* <sup>3</sup>*Belarusian State Pedagogical University, Minsk, Belarus*)

**P1-5 Growth features of HgCdTe LPE layers**

E. K. Huseynov, Sh.O. Eminov, T.I. Ibragimov, N.J. Ismaylov, A. A. Rajabli (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P1-6 Structural and optical properties of cobalt doped sprayed ZnO films**

V. Supriya<sup>1</sup>, T. Sato<sup>2</sup>, M. Sugiyama<sup>2</sup> and K.T. R. Reddy<sup>1</sup> (<sup>1</sup>*Thin Film Laboratory, Department of Physics, Sri Venkateswara University, Tirupati, India;* <sup>2</sup>*Department of Electrical Engineering, Tokyo University of Science, Noda, Japan*)

**P1-7 Investigations on Al-doped ZnMnO films deposited by chemical spray**

L.Rajamohan Reddy<sup>1</sup>, P. Prathap<sup>2</sup>, N. Revathi<sup>1</sup>, T. Sato<sup>3</sup>, M.Sugiyama<sup>3</sup> and K.T.R.Reddy<sup>1</sup> (<sup>1</sup>*Thin Film Laboratory, Department of Physics, Tirupati, India;* <sup>2</sup>*InESS-CNRS, Strasbourg, France;* <sup>3</sup>*Department of Electrical Engineering, Tokyo University of Sciences, Noda, Japan*)

**P1-8 Annealing temperature dependence of properties of Cu<sub>2</sub>ZnSnS<sub>4</sub> thin films prepared by sol-gel sulfurizing method**

K. Maeda, K. Tanaka and H. Uchiki (*Department of Electrical Engineering, Nagaoka University of Technology, Niigata, Japan*)

**P1-9 H<sub>2</sub>S concentration dependence of properties of Cu<sub>2</sub>ZnSnS<sub>4</sub> thin film prepared under non-vacuum condition**

K. Maeda, K. Tanaka and H. Uchiki (*Department of Electrical Engineering, Nagaoka University of Technology, Niigata, Japan*)

**P1-10 Electrical properties of Ga-doped ZnO transparent conducting films prepared at temperatures close to room temperature**

T. Matsumoto<sup>1</sup>, K. Mizuguchi<sup>1</sup>, T. Horii<sup>1</sup>, S. Sano<sup>1</sup>, T. Muranaka<sup>1</sup>, Y. Nabetani<sup>1</sup>, S. Hiraki<sup>2</sup>, H. Furukawa<sup>2</sup>, A. Fukasawa<sup>2</sup>, S. Sakamoto<sup>2</sup>, S. Hagihara<sup>3</sup>, Y. Kono<sup>3</sup>, K. Kijima<sup>3</sup>, O. Abe<sup>3</sup> and K.

Yashiro<sup>3</sup> (<sup>1</sup>Department of Electrical Engineering, University of Yamanashi, Kofu, Japan; <sup>2</sup>Nakaya Corporation, Showacho, Nakakoma, Yamanashi, Japan; <sup>3</sup>Yamanashi Industrial Technology Center, Otsu, Kofu, Japan)

**P1-11 Growth and characterization of GaInAsSb solid solutions with composition near the miscibility gap boundary**

N. Mursakulov<sup>1</sup>, I.A. Andreev<sup>2</sup>, E.V. Kunitsyna<sup>2</sup>, Yu.P. Yakovlev<sup>2</sup>, M. Ahmetoglu<sup>3</sup> (Afrailov), G. Kaynak<sup>3</sup> (<sup>1</sup>Institute of Physics ANAS, Baku, Azerbaijan; <sup>2</sup>Ioffe Physical-Technical Institute RAS, St Petersburg, Russia; <sup>3</sup>Department of Physics, Uludag University, Bursa, Turkey)

**P1-12 Mechanochemical synthesis of Ce-doped CaGa<sub>2</sub>S<sub>4</sub>**

T. Ohta, K. Tanaka and H. Uchiki (Department of Electrical Engineering, Nagaoka University of Technology, Japan)

**P1-13 Fabrication of Cu(In,Ga)Se<sub>2</sub> thin films by sputtering and selenization using diethylselenide**

T. Sato<sup>1</sup>, Y. Kawasaki<sup>1</sup>, M. Sugiyama<sup>1</sup> and S. F. Chichibu<sup>2</sup> (<sup>1</sup>Department of Electrical Engineering, Tokyo University of Science, Noda, Japan; <sup>2</sup>CANTech, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan)

**P1-14 Growth of  $\gamma$ -In<sub>2</sub>Se<sub>3</sub> thin films by electrostatic spray pyrolysis deposition**

T. Kato, T. Hiramatsu and N. Onojima (Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, Kofu, Japan)

**P1-15 Analysis of barrier height inhomogeneity for bismuth Schottky contacts on the layered p-GaTe compound**

B. Abay<sup>1</sup> and Y. K. Yogurtcu<sup>2</sup> (<sup>1</sup>Atatürk University, Faculty of Science, Physics Department, Erzurum, Turkey; <sup>2</sup>Istanbul Aydın University, Faculty of Science and Arts, Turkey)

**P1-16 Ionic conductivity and twin structure configuration change in LSGM**

T. Tataryn<sup>1</sup>, D. Savvytskii<sup>1</sup>, E. Schmidbauer<sup>2</sup>, C. Paulmann<sup>3</sup>, U. Bismayer<sup>4</sup> (<sup>1</sup>*Lviv Polytechnic National University, Lviv, Ukraine;* <sup>2</sup>*Geophysics, Munich University, Germany;* <sup>3</sup>*HASYLAB, DESY, Hamburg, Germany;* <sup>4</sup>*Min.-Petrogr. Institut, Universität Hamburg, Germany*)

**P1-17 Effect of substitution of Ga and In atoms by Yb on physical properties of TIGa(In)S<sub>2</sub> layered crystals**

E.M. Kerimova, N.Z. Gasanov, A.I. Gasanov and K.M. Huseynova (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P1-18 Quaternary nonvariant reactions in Fe-rich corner of the Fe-Mo-C system at high temperatures**

T.A. Velikanova<sup>1</sup>, M.V. Karpets<sup>1</sup>, P.G. Agraval<sup>2</sup>, M.A. Turchanin<sup>2</sup> (<sup>1</sup>*Institute for Problems of Materials Science NASU, Kyiv, Ukraine;* <sup>2</sup>*Donbass State Engineering Academy, Kramatorsk, Ukraine*)

**P1-19 Preparation of Cu<sub>2</sub>ZnSnSe<sub>4</sub> thin films by selenization of stacked Cu/Sn/Zn precursor**

T. Yamaguchi<sup>1</sup>, Sh. Ooura<sup>1</sup>, Sh. Niiyama<sup>2</sup> and T. Imanishi<sup>2</sup> (<sup>1</sup>*Wakayama National College of Technology, Japan;* <sup>2</sup>*Industrial Technology Center of Wakayama Prefecture, Japan*)

**P1-20 Growth of CuInGaSe<sub>2</sub> films on Mo substrate by RF sputtering and their characterization**

T. Tokuda<sup>1</sup>, K. Yoshino<sup>1</sup>, K. Miseki<sup>2</sup>, R. Mori<sup>2</sup>, Sh. Zhang<sup>2</sup>, Sh. Doutyoku<sup>2</sup> (<sup>1</sup>*Department of Electrical and Electric Engineering, University of Miyazaki, Japan;* <sup>2</sup>*Sanda Plant, Mitsubishi Materials Corporation, Hyogo, Japan*)

**P1-21 Non-vacuum process of AgInSe<sub>2</sub> crystal growth by hot-press method**

K Yoshino<sup>1</sup>, H. Tsuru<sup>1</sup> and A. Nagaoka<sup>1</sup> (<sup>1</sup>*Department of Electrical and Electric Engineering, University of Miyazaki, Japan*)

**P1-22 Effect of annealing for CuInS<sub>2</sub> thin films prepared from In-rich ternary compound**

Y. Akaki<sup>1</sup>, Yu Kawano<sup>1</sup>, Sh. Nakamura<sup>2</sup>, T. Tokuda<sup>3</sup> and K. Yoshino<sup>3</sup> (<sup>1</sup>*Department of Electrical and Computer Engineering, Miyakonojo National College of Technology Miyazaki, Japan;* <sup>2</sup>*Department of Electrical and Electronics Engineering, Tsuyama National College of Technology, Okayama, Japan;* <sup>3</sup>*Department of Electrical and Electronics Engineering, University of Miyazaki, Japan*)

**P1-23 Effect of H<sub>2</sub>S annealing for Sb-doped CuInS<sub>2</sub> thin films prepared from ternary compound**

Y. Akaki<sup>1</sup>, N. Yamazumi<sup>1</sup>, Sh. Nakamura<sup>2</sup>, T. Tokuda<sup>3</sup> and K. Yoshino<sup>3</sup> (<sup>1</sup>*Department of Electrical and Computer Engineering, Miyakonojo National College of Technology Miyazaki, Japan;* <sup>2</sup>*Department of Electrical and Electronics Engineering, Tsuyama National College of Technology, Okayama, Japan;* <sup>3</sup>*Department of Electrical and Electronics Engineering, University of Miyazaki, Japan*)

**P1-24 Effect of annealing for Ag-rich AgInS<sub>2</sub> thin films prepared by a vacuum evaporation method**

Y. Akaki<sup>1</sup>, K. Yamashita<sup>2</sup>, T. Yoshitake<sup>2</sup>, Sh. Nakamura<sup>3</sup>, T. Tokuda<sup>4</sup> and K. Yoshino<sup>4</sup> (<sup>1</sup>*Department of Electrical and Computer Engineering, Miyakonojo National College of Technology Miyazaki, Japan;* <sup>2</sup>*Department of Applied Science for Electronics and Materials, University of Kyushu, Fukuoka, Japan;* <sup>3</sup>*Department of Electrical and Electronics Engineering, Tsuyama National College of Technology, Okayama, Japan;* <sup>4</sup>*Department of Electrical and Electronics Engineering, University of Miyazaki, Japan*)

**P1-25 Glass-crystals materials of B<sub>2</sub>O<sub>3</sub>-Bi<sub>2</sub>O<sub>3</sub>-Me<sub>2</sub>O<sub>3</sub> (Me =Yb, Lu) systems**

M.M. Asadov, N.A. Akhmedova (*Institute of Chemical Problems, National Academy of Sciences, Baku, Azerbaijan*)

**P1-26 Growth of Cu(In,Al)(Se,S)<sub>2</sub> thin films by selenization and sulfurization for a wide bandgap absorber**

C. Fujiwara<sup>1</sup>, Y. Kawasaki<sup>1</sup>, T. Sato<sup>1</sup>, M. Sugiyama<sup>1</sup> and S. F. Chichibu<sup>2</sup> (<sup>1</sup>*Department of Electrical Engineering, Tokyo University of Science, Noda, Japan;* <sup>2</sup>*CANTech, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan*)

**P1-27 Growth and electrochemical property of DC and RF sputter deposited IrO<sub>x</sub>-SnO<sub>x</sub> films**

S. Harada and S. Yoshino (*Department of Electrical and Electric Engineering, University of Miyazaki, Japan*)

**P1-28 Low-temperature preparation of ZnO films by electrostatic spray pyrolysis deposition for transparent conductive oxide**

N. Onojima<sup>1</sup>, S. Fukui<sup>1</sup>, U. Horimoto<sup>1</sup> and T. Kato<sup>1</sup> (*Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, Kofu, Japan*)

**P1-29 Effects of Sb on the film formation of CuInSe<sub>2</sub>**

Huey-Liang Hwang<sup>1</sup>, Yu-Yang Ho<sup>2</sup>, Yu-Han Kuo<sup>2</sup>, Bae-Heng Tseng<sup>2</sup> (<sup>1</sup>*Department of Electrical Engineering, National Tsing-Hua University, Hsinchu, Taiwan;* <sup>2</sup>*Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Kaohsiung, Taiwan*)

**P1-30 Growth and dielectric properties of novel TiGaS<sub>2</sub><Ni> single crystals in alternate electric fields**

A.M. Pashaev, S.N. Mustafaeva, E.M. Kerimova, R.N. Kerimov (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

- P1-31 Structural evolutions of the mechanically alloyed  $\text{Al}_{70}\text{Cu}_{20}\text{Fe}_{10}$  powders**  
M. Göğebakan and B. Avar (*Department of Physics, Faculty of Art and Science, Kahramanmaraş Sutcu Imam University, Turkey*)
- P1-32 Characteristics of low resistivity FTO thin film grown by spray method**  
M. Oshima and K. Yoshino (*Department of Electrical & Electronic Engineering, University of Miyazaki, Japan*)
- P1-33 Characterization of n and p-type ZnO thin films grown by pulsed filtered cathodic vacuum arc system**  
H. Kavak,<sup>1</sup> N. H. Erdogan, I. Ozsahin, R. Esen (*Physics Department, Cukurova University, Adana, Turkey*)
- P1-34 Athermal nonvacuum creation of new polydisalicylidene azometines/Si(GaAs) heterojunctions**  
N.M. Mehdiiev<sup>1</sup>, Yu.A. Nikolaev<sup>2</sup>, V.Yu. Rud<sup>3</sup>, Yu.V.Rud<sup>2</sup>, E.I.Terukov<sup>2</sup>, T.N. Ushakova<sup>2</sup>, N.M. Heller<sup>4</sup>, A.G. Ivanov<sup>4</sup>, and V.V. Shamanin<sup>4</sup> (*<sup>1</sup>Azerbaijan State Oil Academy, Baku, Azerbaijan; <sup>2</sup>Ioffe Physico-Technical Institute, Russian Academy of Sciences, St. Petersburg, Russia; <sup>3</sup>St. Petersburg State Polytechnical University, Russia; <sup>4</sup>Institute of Macromolecular Compounds, Russian Academy of Sciences, St. Petersburg, Russia*)
- P1-35 About one feature of interface of the heterojunctions made by a method of landing to optical contact**  
A.G. Kyazym-zade, V.M. Salmanov, S. F. Axmedov (*Baku State University, Azerbaijan*)

## 17:00-18:00 **Poster session 2**

- P2-1 Local structure around Mn atoms in IV-VI ferromagnetic semiconductor  $\text{Ge}_{0.6}\text{Mn}_{0.4}\text{Te}$  by X-ray fluorescence holography**  
N. Happo,<sup>1</sup> S. Senba,<sup>2</sup> S. Hosokawa,<sup>3</sup> K. Hayashi,<sup>4</sup> W. Hu,<sup>5</sup> M. Fujiwara,<sup>1</sup> K. Tanaka,<sup>1</sup> H. Asada,<sup>6</sup> and M. Suzuki<sup>7</sup> (<sup>1</sup>Graduate School of Information Sciences, Hiroshima City University, Japan; <sup>2</sup>Department of Electrical Engineering, Ube National College of Technology, Ube, Japan; <sup>3</sup>Center for Materials Sciences Using Third-Generation Synchrotron Radiation Facilities, Hiroshima Institute of Technology, Japan; <sup>4</sup>Institute of Materials Research, Tohoku University, Sendai, Japan; <sup>5</sup>SPRING-8/JAEA, Hyogo, Japan; <sup>6</sup>Graduate School of Science and Engineering, Yamaguchi University, Ube, Japan; <sup>7</sup>SPRING-8/JASRI, Japan)
- P2-2 Three-dimensional atomic images of  $\text{TlInSe}_2$  thermoelectric material obtained by X-ray fluorescence holography**  
S. Hosokawa,<sup>1</sup> N. Happo,<sup>2</sup> K. Hayashi,<sup>3</sup> K. Mimura,<sup>4</sup> K. Wakita,<sup>5</sup> W. Hu,<sup>6</sup> H. Ishii,<sup>7</sup> J. Jayakanthan,<sup>7</sup> and N. Mamedov<sup>8</sup> (<sup>1</sup>Center for Materials Sciences Using Third-Generation Synchrotron Radiation Facilities, Hiroshima Institute of Technology, Japan; <sup>2</sup>Graduate School of Information Sciences, Hiroshima City University, Japan; <sup>3</sup>Institute of Materials research, Tohoku University, Sendai, Japan; <sup>4</sup>Graduate School of Engineering, Osaka Prefecture University, Japan; <sup>5</sup>Faculty of Engineering, Chiba Institute of Technology, Japan; <sup>6</sup>SPRING-8/JAEA, Hyogo, Japan; <sup>7</sup>NSRRC SPRING-8 Office, Hyogo, Japan; <sup>8</sup>Institute of Physics, National Academy of Sciences, Baku, Azerbaijan)
- P2-3 Synchrotron-radiation diffraction study of  $\text{YbInCu}_4$**   
H. Sato<sup>1</sup>, Y. Utsumi<sup>2</sup>, Ch. Moriyoshi<sup>2</sup>, T. Hashimoto<sup>2</sup>, Y. Kuroiwa<sup>2</sup>, H. Namatame<sup>1</sup>, M. Taniguchi<sup>1,2</sup>, K. Hiraoka<sup>3</sup>, K. Kojima<sup>4</sup> and K. Sugimoto<sup>5</sup> (<sup>1</sup>Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan; <sup>2</sup>Graduate School of Science, Hiroshima University, Japan; <sup>3</sup>Graduate School of Science and Engineering, Ehime University, Japan; <sup>4</sup>Graduate School of Integrated Arts and Sciences, Hiroshima University, Japan; <sup>5</sup>JASRI/SPRING-8, Hyogo, Japan)

**P2-4 Temperature dependence of the absorption edge in CuInSe<sub>2</sub>**

A.Kh. Mativev<sup>1</sup>, R.M.Yevteyeva<sup>1</sup>, A.V. Yevloyev<sup>2</sup> (<sup>1</sup>M. D. Millionshikov Grozny State Oil Institute, Grozny, Russia; <sup>2</sup>The Ingush State University, Magas, Russia)

**P2-5 Photoluminescence study of AgInS<sub>2</sub> by using confocal microscopy system**

U. Miyamoto<sup>1</sup>, A. Suzuki<sup>1</sup>, K. Honjo<sup>2</sup>, Y. Shim<sup>3</sup>, T. Takahiro<sup>4</sup>, K. Yoshino<sup>4</sup>, N. Mamedov<sup>5</sup> and K. Wakita<sup>1</sup> (<sup>1</sup>Chiba Institute of Technology, Japan; <sup>2</sup>Center Office, Nyquist Inc., Japan; <sup>3</sup>Osaka Prefecture University, Japan; <sup>4</sup>Miyazaki University, Japan; <sup>5</sup>Institute of Physics, National Academy of Sciences, Baku, Azerbaijan)

**P2-6 Spectroscopic ellipsometry studies of CdS:O layers for solar cells**

Y. Shim<sup>1</sup>, J. Sakamoto<sup>1</sup>, A. Suzuki<sup>2</sup>, Kh. Khalilova<sup>3</sup>, K. Wakita<sup>2</sup>, N. Mamedov<sup>3</sup>, A. Bayramov<sup>3</sup>, E. Huseynov<sup>3</sup>, I. Hasanov<sup>3</sup> (<sup>1</sup>Osaka Prefecture University, Japan; <sup>2</sup>Chiba Institute of Technology, Japan; <sup>3</sup>Institute of Physics, National Academy of Sciences, Baku, Azerbaijan)

**P2-7 Confocal Raman and PL, AFM, and X-ray diffraction studies of CdS:O thin films**

A. Suzuki<sup>1</sup>, K. Wakita<sup>1</sup>, Y. Shim<sup>2</sup>, N. Mamedov<sup>3</sup>, A. Bayramov<sup>3</sup>, E. Huseynov<sup>3</sup>, R. Hajimammadov<sup>3</sup> (<sup>1</sup>Chiba Institute of Technology, Japan; <sup>2</sup>Osaka Prefecture University, Japan; <sup>3</sup>Institute of Physics, National Academy of Sciences, Baku, Azerbaijan)

**P2-8 Comparison of optical parameters of Ge-As(Sb)-Se(Te) glassy films**

E. Mammadov<sup>1,4</sup>, Y. Shim<sup>2</sup>, J. Sakamoto<sup>2</sup>, K. Wakita<sup>3</sup>, N. Mamedov<sup>1</sup>, and H. Uchiki<sup>4</sup> (<sup>1</sup>Institute of Physics, National Academy of Sciences, Baku, Azerbaijan; <sup>2</sup>Osaka Prefecture University, Japan; <sup>3</sup>Chiba Institute of Technology, Japan; <sup>4</sup>Nagaoka University of Technology, Japan)

**P2-9 Determination of space charge region width and diffusion length in Cu(In,Ga)(S,Se)<sub>2</sub> absorber from solar cell spectral characteristic**

M.Tivanov<sup>1</sup>, E.Zaretskaya<sup>2</sup>, V.Gremenok<sup>2</sup>, A.Mazanik<sup>1</sup>, N.Drozdo<sup>1</sup> (<sup>1</sup> *Belarusian State University, Minsk, Belarus;* <sup>2</sup> *Scientific-Practical Materials Research Centre NAS of Belarus, Minsk, Belarus*)

**P2-10 Photo - induced current transient spectroscopy of TlInS<sub>2</sub> layered crystals doped by Er, B and Tb impurity**

M. Yu. Seyidov<sup>1,2</sup>, R. A. Suleymanov<sup>1,2</sup>, A.P. Odrinsky<sup>3</sup>, A.I.Nadjafov<sup>2</sup> and E.G. Samadli<sup>2</sup> (<sup>1</sup> *Department of Physics, Gebze Institute of Technology, Kocaeli, Turkey;* <sup>2</sup> *Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>3</sup> *Institute Technical Acoustics, NAS of Belarus, Vitebsk, Republic of Belarus*)

**P2-11 New electron diffraction rotation methods**

M.G.Kyazumov. (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P2-12 Influence of electron irradiation on current-voltage characteristics of TlGaS<sub>2</sub> single crystals**

A.A. Ismailov, N.D. Ahmedzade, M.M. Shirinov (*G.M Abdullayev Institute of Physics, NAS, Baku, Azerbaijan*)

**P2-13 Magnetic properties of Fe<sub>0.76</sub>In<sub>2.17</sub>S<sub>4</sub> and Fe<sub>1.31</sub>In<sub>3.13</sub>Se<sub>6</sub>**

A. Krimmel<sup>1</sup>, Z.Seidov<sup>1,3</sup>, H.-A. Krug von Nidda<sup>1</sup>, D.Vieweg<sup>1</sup>, M.Reissner<sup>2</sup>, W.Steiner<sup>2</sup>, A. Loidl<sup>1</sup>, G.Huseynov<sup>3</sup>, and A. Najafov<sup>3</sup> (<sup>1</sup> *Experimentalphysik V, Elektronische Korrelationen und Magnetismus, Institut für Physik, Universität Augsburg, Germany;* <sup>2</sup> *Institute of Solid State Physics, Vienna University of Technology, Austria;* <sup>3</sup> *Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P2-14 Super-ionic conductivity in (1D) nanofibrous TlGaTe<sub>2</sub>**

R.M. Sardarly<sup>1</sup>, O.A. Samedov<sup>1</sup>, A.P. Abdullaev<sup>1</sup>, F.T. Salmanov<sup>1</sup>, A. Urbanovic<sup>2</sup>, F. Garet<sup>2</sup>, J.-L. Coutaz<sup>2</sup> (<sup>1</sup>*Institute of Radiation Problems, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*IMEP-LAHC, UMR CNRS, France*)

**P2-15 Properties of PbS thin films grown on GaSe and glass substrates by CBD**

G.M. Mamedov<sup>1</sup>, H. Ertap<sup>1</sup>, M. Karabulut<sup>1</sup>, G. Uğurlu<sup>1</sup>, M.K. Öztürk<sup>2</sup>, H. Çelikkan<sup>2</sup> (<sup>1</sup>*Kafkas University, Faculty of Arts and Sciences, Department of Physics, Kars, Turkey;* <sup>2</sup>*Gazi University, Faculty of Science, Department of Physics, Ankara, Turkey*)

**P2-16 Natural photopleochroism of In/p-Ag<sub>3</sub>AsS<sub>3</sub> surface-barrier structures**

N.M. Mehtiyev<sup>1</sup>, V.Yu. Rud<sup>2</sup>, Yu.V. Rud<sup>3</sup>, E.I. Terukov<sup>3</sup> (<sup>1</sup>*Azerbaijdzhan State Oil Academy, Azerbaijan;* <sup>2</sup>*Saint-Petersburg State Polytechnic University, Russia;* <sup>3</sup>*Ioffe Physico-Technical Institute RAS, Saint-Petersburg, Russia*)

**P2-17 <sup>57</sup>Fe Mössbauer spectroscopy of Sm-Y-Fe-Sb-O ceramics**

S. Lebedeva<sup>1</sup>, T. Tarasevich<sup>1</sup>, O. Ignatenko<sup>1</sup>, O. Zheleznyakova<sup>2</sup>, V. Dobryanskii<sup>2</sup>, J.A. Kasyk<sup>3</sup>, and J.A. Fedotova<sup>3</sup> (<sup>1</sup>*SSPA "Scientific-Practical Materials Research Centre of NAS of Belarus", Minsk, Belarus;* <sup>2</sup>*Maxim Tank Belarusian State Pedagogical University, Minsk, Belarus;* <sup>3</sup>*The National Scientific and Educational Centre of Particle and High Energy Physics of the BSU, Minsk, Belarus*)

# September 29 (Wednesday)

## Oral Presentations

9:30- 11:00

### **Morning Session**

Chairpersons:

Prof. V. Gantmakher (*ISSP, RAS, Chernogolovka, Russia*)

Prof. I. Kamilov (*Institute of Physics, Daghestan Sci. Center, Russia*)

9:30

I3-1

### **High-pressure studies of iron-based superconductors**

H. Takahashi<sup>1,2</sup>, T. Tomita<sup>1,2</sup>, Y. Kamihara<sup>2,3</sup>, S. Matsuishi<sup>4</sup>, M. Hirano<sup>4,5</sup> and H. Hosono<sup>4,5</sup>

<sup>1</sup>*College of Humanities and Sciences, Nihon University, Tokyo, Japan*

<sup>2</sup>*TRIP, Japan Science and Technology Agency (JST), Tokyo, Japan*

<sup>3</sup>*Faculty of Science & Technology, Keio University, Yokohama, Japan*

<sup>4</sup>*Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan*

<sup>5</sup>*Frontier Research Center, Tokyo Institute of Technology, Yokohama, Japan*

10:00

I3-2

### **Microwave surface impedance and complex conductivity of organic and multizone superconductors**

M.R. Trunin<sup>1,2</sup> and A.F. Shevchun<sup>1</sup>

<sup>1</sup>*Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Russia*

<sup>2</sup>*Moscow Institute of Physics and Technology, Dolgoprudny, Russia*

10:30

I3-3

### **Pressure dependence of the bandgap, lattice parameters, and pressure-induced phase transitions in $A^2B^3C^6$ compounds**

F. J. Manjón<sup>1</sup>, I. M. Tiginyanu<sup>2</sup>, and V. V. Ursaki<sup>3</sup>

<sup>1</sup>*Departament de Física Aplicada, Universitat Politècnica de València, Spain*

<sup>2</sup>*Institute of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Moldova*

<sup>3</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*

**11:00 -11:20**      **Coffee break**

**11:20-12:40**      **Morning Session**

Chairpersons:

Prof. M. Trunin (*ISSP, RUS, Chernogolovka, Russia*)

Prof. H. Takahashi (*Nihon University, Japan*)

**11:20 O3-1 Thermodynamics and the quantitative description of polymorphic and superconducting transitions in disordered media**

I.K. Kamilov , M.I. Daunov, R.R. Bashirov

*Institute of Physics, Daghestan Scientific Center,*

*Russian Academy of Sciences, Makhachkala, Russia*

**11:40 O3-2 Anomalies in transport and superconducting properties of Ba<sub>(1-x)</sub>K<sub>x</sub>Fe<sub>2</sub>As<sub>2</sub> single crystals**

V.N.Zverev<sup>1</sup>, A.V.Korobenko<sup>1</sup>, G.L.Sun<sup>2</sup>, D.L.Sun<sup>2</sup>,  
C.T.Lin<sup>2</sup>, and A.V.Boris<sup>2</sup>

<sup>1</sup>*Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Russia*

<sup>2</sup>*Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany*

**12:00 O3-3 Structural and magnetic phase transitions in the single crystals p-Cd<sub>1-x</sub>Mn<sub>x</sub>GeAs<sub>2</sub>**

A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, S. F. Marenkin<sup>2</sup>, V.M. Novotortsev<sup>2</sup>, U. Z. Zalibekov<sup>1</sup>,  
T. R. Arslanov<sup>1</sup>

<sup>1</sup>*Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia*

<sup>2</sup>*Institute of common and inorganic chemistry of the*

12:20 O3-4 **Temperature induced structural phase transitions in chalcopyrite type compound semiconductors**

Ch. Stephan<sup>1</sup>, S. Schorr<sup>2</sup>, D. Thomas<sup>1</sup>, M. Di Michiel<sup>3</sup>,  
H-W. Schock<sup>1</sup>

<sup>1</sup>Helmholtz-Zentrum Berlin fuer Materialien und Energie,  
Solar Energy Research, Institute of Technology, Berlin,  
Germany

<sup>2</sup>Free University Berlin, Earth Science Dept., Berlin,  
Germany

<sup>3</sup>European Synchrotron Radiation Facility ESRF,  
Grenoble, France

13:00-14:00 **Lunch**

14:00 -15:30 **Afternoon session**

Chairpersons:

Prof. S. Wei (*National Renewable Energy laboratory,  
USA*)

Prof. B.M. Askerov (*Baku State University, Azerbaijan*)

14:00 I4-1 **Ab initio design of new generation superalloys**

E. Isaev

*Department of Physics, Chemistry and Biology (IFM),  
Linkoping University, Sweden*

*Theoretical Physics Department, Moscow State Institute  
of Steel and Alloys, Moscow, Russia*

14:30 I4-2 **The phonon percolation scheme for alloys: Pressure dependence and extension to the whole lattice dynamics**

G. K. Pradhan<sup>1</sup>, C. Narayana<sup>1</sup>, Mala N. Rao<sup>2</sup>, M.d'Astuto<sup>3</sup>,  
S.L. Chaplot<sup>2</sup>, O.Pagès<sup>4</sup>, A.V. Postnikov<sup>4</sup>, A. Breidi<sup>4</sup>,  
J. Souhbi<sup>4</sup>, S. K. Deb<sup>5</sup>, F. Firszt<sup>6</sup> and W. Paszkowicz<sup>6</sup>

<sup>1</sup>Light Scattering Laboratory – JNCASR, Bangalore, India

<sup>2</sup>*Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, India*

<sup>3</sup>*Institut de Minéralogie et de Physique des Milieux Condensés- CNRS Paris, France*

<sup>4</sup>*Laboratoire de Physique des Milieux Denses- IJB, Université de Metz, Metz, France*

<sup>5</sup>*Indus Synchrotron Utilization Division – RRCAT, Indore, India*

<sup>6</sup>*Institute of Physics, N. Copernicus University, Torun, Poland*

<sup>7</sup>*Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*

**15:00 I4-3 Interplay of spin-orbital interactions in a quasi-two-dimensional electron gas with finite thickness under in-plane magnetic field**

E. Nakhmedov<sup>1,2</sup>, O. Alekperov<sup>2</sup>, and R. Oppermann<sup>1</sup>

<sup>1</sup>*Institut für Theoretische Physik, Universität Würzburg, Würzburg, Germany*

<sup>2</sup>*Institute of Physics, Azerbaijan National Academy of Sciences, Baku, Azerbaijan*

**15:30-15:50**      *Coffee break*

**15:50-17:50**      **Afternoon session**

Chairpersons:

Prof. J. Vidal (*IRDEP, France*)

Prof. V. Nelayev (*BSUIR, Belarus*)

**15:50 O4-1 Electronic band structure and surface reconstruction of CuInSe<sub>2</sub> and its copper-deficient defect phase**

A. Hofmann, C. Lehmann and C. Pettenkofer<sup>1</sup>

<sup>1</sup>*Helmholtz-Zentrum Berlin, Institute for Charge Carrier Dynamics E-14, Berlin, Germany*

**16:10 O4-2 *Ab initio* band structure and phonons in kesterite Cu<sub>2</sub>ZnSnSe<sub>4</sub>**

N. B. Mortazavi Amiri and A. Postnikov  
LPMD, Institute Jean Barriol and Paul Verlaine University  
- Metz, Metz, France

16:30 **O4-3 First principles spectroscopy of  $\text{CuInSe}_2$ ,  $\text{CuGaSe}_2$ , and  $\text{CuInS}_2$  chalcopyrite compounds**

T. Hamada<sup>1,3</sup> and T. Ohnor<sup>2,3</sup>

<sup>1</sup>Advanced Research Laboratory, Hitachi Ltd., Hatoyama, Saitama, Japan

<sup>2</sup>Institute of Materials Research, Tsukuba, Ibaraki, Japan

<sup>3</sup>Institute of Industrial Science, University of Tokyo, Japan

16:50 **O4-4 II-IV-V<sub>2</sub> and Zn-III-IV-As<sub>3</sub> compounds for photovoltaic applications**

A. V. Krivosheeva<sup>1</sup>, V. L. Shaposhnikov<sup>1</sup>,

V. E. Borisenko<sup>1</sup>, F. Arnaud D'Avitaya<sup>2</sup> and J-L. Lazzari<sup>2</sup>

<sup>1</sup>Belarusian State University of Informatics and

Radioelectronics, Minsk, Belarus

<sup>2</sup>Centre Interdisciplinaire de Nanoscience de Marseille, France

17:10 **O4-5 *Ab initio* lattice dynamics of  $\text{TIGaSe}_2$  and  $\text{TIGaS}_2$**

D.A. Huseinova<sup>1</sup>, K.R. Allakhverdiev<sup>1,3\*</sup>,

F.M. Hashimzade<sup>1</sup>, M.A. Nizametdinova<sup>2</sup>, and

G.S. Orudzhev<sup>1,4</sup>

<sup>1</sup>Institute of Physics, Azerbaijan National Academy of Sciences, Baku, Azerbaijan

<sup>2</sup>Azerbaijan University of Architecture and Construction, Baku, Azerbaijan

<sup>3</sup>TUBITAK, Marmara Research Center, Materials Institute, Gebze/Kocaeli, Turkey

<sup>4</sup>Azerbaijan Technical University, Baku, Azerbaijan

17:30 **O4-6 Structural, optical and electrical properties of semiconductor compounds studied by means of inelastic light scattering from**

**phonon, electron and coupled electron-  
phonon excitations: From bulk to nanoscale**

H. Bairamov, V.V. Toporov

*Ioffe Physico-Technical Institute, St. Petersburg, Russia*

19:00 ~ *Banquet*

# September 29 (Wednesday)

## Poster presentations

(posters shall be placed on poster stands by 15:00 and removed from the stands next day between 12:00 and 14:00)

Chairpersons: Prof. H. Uchiki (*Nagaoka University of Technology, Japan*)  
Dr. E. Mammadov (*Institute of Physics, NAS, Azerbaijan*)

### 17:50-18:50 Poster session 3

#### P3-1 About high pressure induced negative magneto resistance in $\text{Cd}_{1-x}\text{Mn}_x\text{GeAs}_2$

A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, T. R. Arslanov<sup>1</sup>, U. Z. Zalibekov<sup>1</sup>, V. M. Novotortsev<sup>2</sup>, S. F. Marenkin<sup>2</sup> (<sup>1</sup>*Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia;* <sup>2</sup>*Institute of common and inorganic chemistry of the Russian Academy of Sciences, Moscow, Russia*)

#### P3-2 Crystal structure behaviour of mixed $\text{R}_{1-x}\text{Eu}_x\text{AlO}_3$ (R = La, Pr) perovskites

T. Basyuk<sup>1</sup>, V. Berezovets<sup>2</sup>, D. Trots<sup>3</sup>, S. Hoffmann<sup>4</sup>, L. Vasylechko<sup>1</sup> (<sup>1</sup>*Semiconductor Electronics Department, Lviv Polytechnic National University, Ukraine;* <sup>2</sup>*Karpenko Physico-Mechanical Institute of NAS of Ukraine, Lviv, Ukraine;* <sup>3</sup>*Bayerisches Geoinstitut, Universität Bayreuth, Germany;* <sup>4</sup>*Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany*)

#### P3-3 Impurity energy spectrum of indium arsenide at atmospheric and hydrostatic pressures

M.I. Daunov, I.K. Kamilov, A. Yu. Mollaev, S.F. Gabibov (*Institute of Physics, Daghestan Scientific Center, Russian Academy of Sciences, Makhachkala, Russia*)

- P3-4 Influence of polytypism on ferroelectric phase transition in TlGaSe<sub>2</sub> crystals**  
Yu.P.Gololobov<sup>1</sup>, N.A.Borovoi<sup>2</sup>, G.L.Isayenko<sup>1</sup> and O.V.Prystai<sup>2</sup>  
*(<sup>1</sup>National Transport University, Kyiv, Ukraine; <sup>2</sup>Physics department, Kyiv National University, Ukraine)*
- P3-5 Cd<sub>1-x</sub>Mn<sub>x</sub>GeAs<sub>2</sub> as a prospective pressure transducer**  
A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, T. R. Arslanov<sup>1</sup>,  
U. Z Zalibekov<sup>1</sup>, V. M. Novotortsev<sup>2</sup>, S. F. Marenkin<sup>2</sup>, E.S. Ibaev<sup>1</sup>  
*(<sup>1</sup>Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia; <sup>2</sup>Institute of common and inorganic chemistry of the Russian Academy of Sciences, Moscow, Russia)*
- P3-6 Effects of pressure and temperature on properties of electronic-ionic conductors (GeS)<sub>1-x</sub>(CuAsS<sub>2</sub>)<sub>x</sub>**  
N. Melnikova<sup>1</sup>, A. Mollaev<sup>2</sup>, O. Kheifets<sup>1</sup>, L. Saypulaeva<sup>2</sup>, P. Hohlachev<sup>2</sup>,  
A. Alibekov<sup>2</sup>, A. Filippov<sup>1</sup> and A. Babushkin<sup>1</sup> (*<sup>1</sup>Low Temperature Physics Dept, Ural State University, Ekaterinburg, Russia; <sup>2</sup> Institute of Physics of Dagestan Scientific Centre of RAS, Makhachkala, Russia*)
- P3-7 n-InAs and n-CdAs<sub>2</sub> as repers and calibrators for pressure monitoring**  
A.Yu.Mollaev, S.L.Saypulaeva, R.K.Arslanov, A.G. Alibekov,  
N.S.Abakarova (Institute of Physics, Dagestan Scientific Canter, Russian Academy of Sciences, Makhachkala, Russia)
- P3-8 Magnetovolume effect and magnetic transitions in the Cd<sub>1-x</sub>Mn<sub>x</sub>GeAs<sub>2</sub> at the high pressure**  
A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, T. R. Arslanov<sup>1</sup>,  
U. Z Zalibekov<sup>1</sup>, R. R. Bashirov<sup>1</sup>, V. M. Novotortsev<sup>2</sup>, S. F. Marenkin<sup>2</sup>  
*(<sup>1</sup>Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia; <sup>2</sup>Institute of common and inorganic chemistry of the Russian Academy of Sciences, Moscow, Russia)*

- P3-9 Comprehensive study of high temperature ferromagnetic semiconductor  $\text{Cd}_{0.94}\text{Mn}_{0.06}\text{GeAs}_2$**   
A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, T. R. Arslanov<sup>1</sup>, U. Z. Zalibekov<sup>1</sup>, V. M. Novotortsev<sup>2</sup>, S. F. Marenkin<sup>2</sup> (<sup>1</sup>*Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia;* <sup>2</sup>*Institute of common and inorganic chemistry of the Russian Academy of Sciences, Moscow, Russia*)
- P3-10 Magnetic phase transitions in the  $\text{CdGeAs}_2$ ,  $\text{CdGeP}_2$ , and  $\text{ZnGeAs}_2$  doped by manganese**  
A. Yu. Mollaev<sup>1</sup>, I. K. Kamilov<sup>1</sup>, R. K. Arslanov<sup>1</sup>, T. R. Arslanov<sup>1</sup>, U. Z. Zalibekov<sup>1</sup>, V. M. Novotortsev<sup>2</sup>, S. F. Marenkin<sup>2</sup>, I.V. Fedorchenko<sup>2</sup> (<sup>1</sup>*Institute of Physics, Daghestan Scientific Center of the Russian Academy of Sciences, Makhachkala, Russia;* <sup>2</sup>*Institute of common and inorganic chemistry of the Russian Academy of Sciences, Moscow, Russia*)
- P3-11  $\gamma$ - Radiation stimulated structural transition in  $\text{TlInS}_2$  from monoclinic to hexagonal phase**  
O. Z. Alekperov, V.A. Gasymov, A.I. Nadjafov, N. A. Safarov (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)
- P3-12 Unoccupied electronic structure of iron-based superconductors  $\text{NdFeAsO}_{0.7}$  and  $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$  ( $x = 0, 0.11$ )**  
H. Sato<sup>1,4</sup>, Y. Utsumi<sup>2</sup>, O. Morimoto<sup>1</sup>, Y. Nakashima<sup>2</sup>, A. Ino<sup>2,4</sup>, Y. Aiura<sup>3,4</sup>, A. Iyo<sup>3,4</sup>, H. Kito<sup>3,4</sup>, K. Miyazawa<sup>3</sup>, P. M. Shirage<sup>3</sup>, H. Eisaki<sup>3,4</sup>, Chul-Ho Lee<sup>3,4</sup>, K. Kihou<sup>3</sup>, H. Namatame<sup>1</sup> and M. Taniguchi<sup>1,2</sup> (<sup>1</sup>*Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan;* <sup>2</sup>*Graduate School of Science, Hiroshima University, Japan;* <sup>3</sup>*National Institute of Advanced Industrial Science and Technology, Ibaraki, Japan;* <sup>4</sup>*Japan Science and Technology Agency, Transformative Research-Project on Iron Pnictide (JST-TRIP)*)

**P3-13 Change in Eu 3d hard X-ray photoelectron spectra through the temperature-induced valence transition of EuPd<sub>2</sub>Si<sub>2</sub>**

K. Mimura<sup>1</sup>, T. Uozumi<sup>1</sup>, T. Ishizu<sup>1</sup>, S. Motonami<sup>1</sup>, H. Sato<sup>2</sup>, Y. Utsumi<sup>3</sup>, Sh. Ueda<sup>4</sup>, A. Mitsuda<sup>5</sup>, K. Shimada<sup>2</sup>, Y. Taguchi<sup>1</sup>, Y. Yamashita<sup>4</sup>, H. Yoshikawa<sup>4</sup>, H. Namatame<sup>2</sup>, M. Taniguchi<sup>2,3</sup>, K. Kobayashi<sup>4</sup> (<sup>1</sup>*Department of Mathematical Sciences, Graduate School of Engineering, Osaka Prefecture University, Japan;* <sup>2</sup>*Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan;* <sup>3</sup>*Department of Physical Sciences, Graduate School of Science, Hiroshima University, Japan;* <sup>4</sup>*NIMS Beamline Station at SPring-8, National Institute for Materials Science, Japan;* <sup>5</sup>*Department of Physics, Graduate School of Science, Kyushu University, Japan*)

**P3-14 Influence of hydrostatic pressure on parameters of localized states in TiGaTe<sub>2</sub>**

S.N.Mustafaeva, Sh.G.Gasymov, E.M.Kerimova (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P3-15 The metal dielectric transition induced by temperature in layered compound Bi<sub>2</sub>Te<sub>3-x</sub>Cl<sub>x</sub>**

N.A. Abdullayev<sup>1</sup>, N.M. Abdullayev<sup>1</sup>, X.V. Aliguliyeva<sup>1</sup>, K.M. Mustafayeva<sup>1</sup>, T.G. Kerimova<sup>1</sup>, S.A. Nemov<sup>2</sup>, V.N. Zverev<sup>3</sup> (<sup>1</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*St. Petersburg State Polytechnical University, Russia;* <sup>3</sup>*Institute of Solid State Physics, Academy of Sciences, Chernogolovka,, Russia*)

**P3-16 The role of electronic subsystem in the negative thermal expansion of ferroelectric-semiconductor TiGaSe<sub>2</sub>**

R.A. Suleymanov<sup>1,2</sup>, N.A. Abdullayev<sup>1</sup>, T.G. Mammadov<sup>1</sup>, M.Y. Seyidov<sup>1,2</sup>, E. Yakar<sup>2</sup> (<sup>1</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*Department of Physics, Gebze Institute of Technology, Gebze, Kocaeli, Turkey*)

**P3-17 Charged defects and memory effect in ferroelectric – semiconductor TlInS<sub>2</sub>**

M. Yu. Seyidov<sup>1,2</sup>, R. A. Suleymanov<sup>1,2</sup>, A.K. Fedotov<sup>3</sup>, T.G. Mammadov<sup>2</sup>, S.S. Babayev<sup>2</sup>, G.M.Sharifov<sup>2</sup>, M.I.Tarasik<sup>3</sup>

(<sup>1</sup>*Department of Physics, Gebze Institute of Technology, Gebze, Kocaeli, Turkey;* <sup>2</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>3</sup>*Belarusian State University, Minsk, Belarus*)

**P3-18 Dielectric properties of solid solutions with structure of tetragonal tungsten bronze (TTB) in morphotropic phase transition region**

R. Z. Mehdiyeva<sup>1</sup>, A. I. Mammadov<sup>1</sup>, F. A. Kadimova<sup>2</sup> (<sup>1</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*Baku state university, Azerbaijan*)

**P3-19 Structure and magnetic properties of (FeSe)<sub>0.96</sub>(GeTe)<sub>0.04</sub>**

M.M. Asadov<sup>1</sup>, O.F. Demidenko<sup>2</sup>, A.I. Galyas<sup>2</sup>, F. M. Mamedov<sup>1</sup>, K. I. Yanushkevich<sup>2</sup> (<sup>1</sup>*M.F.Nagiyev Institute of Chemical Problems, Baku, Azerbaijan;* <sup>2</sup>*SSPA «Scientific-Practical Materials Research Centre», NASB, Minsk, Belarus*)

**17:50-18:50 Poster session 4**

**P4-1 *Ab initio* phonons in metals, compounds, and alloys**

E.Isaev<sup>1,2</sup> (<sup>1</sup>*Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden;* <sup>2</sup>*Theoretical Physics Department, Moscow State Institute of Steel and Alloys, Russia*)

**P4-2 *Ab initio* phonons in shape memory magnetic alloys**

L.Isaeva<sup>1</sup>, D.Bazhanov<sup>2</sup>, E.Isaev<sup>3,4</sup>, S.Kulkova<sup>5</sup>, I.Abrikosov<sup>3</sup>, O.Eriksson<sup>1</sup> (<sup>1</sup>*Uppsala University, Department of Physics and Astronomy, Materials Theory Group, Sweden;* <sup>2</sup>*M.V. Lomonosov Moscow State University, Department of Physics, Russia;* <sup>3</sup>*Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden;* <sup>4</sup>*Theoretical Physics Department, Moscow*

*State Institute of Steel and Alloys (Technological University), Russia;*<sup>5</sup> *Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia)*

**P4-3 Diamagnetic shift of the A free exciton in CuGaSe<sub>2</sub> in magnetic fields**

F. Luckert<sup>1</sup> and M.V. Yakushev<sup>1</sup> and R.W. Martin<sup>1</sup> and C. Faugeras<sup>2</sup> and A.V. Mudryi<sup>3</sup> and A.V. Karotki<sup>3</sup> (<sup>1</sup>Department of Physics, SUPA, Strathclyde University, Glasgow, UK; <sup>2</sup>Grenoble HMFL, France; <sup>3</sup>Scientific-Practical Material Research Centre of the National Academy of Science of Belarus, Minsk, Belarus)

**P4-4 Influence of exchange interaction on properties of optical polaron in ternary semimagnetic compounds**

S.M. Seyid-Rzayeva (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P4-5 Band structure and optical properties of some ternary compounds - A<sup>5</sup>B<sup>6</sup>C<sup>7</sup>: *ab initio* calculation**

H. Koc<sup>1</sup>, H. Akkus<sup>2</sup> and A. M. Mamedov<sup>1</sup> (<sup>1</sup>*Physics Department, Cukurova University, Adana, Turkey;* <sup>2</sup>*Physics Department, Yuzuncu Yil University, Van, Turkey*)

**P4-6 Studies of electrons trapping centers surrounded by a repulsive barrier in CdIn<sub>2</sub>S<sub>4</sub>**

Z. Kadiroğlu, T.G. Kerimova, I.G. Nasibov (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P4-7 Multi-scale simulation of nano-structured materials and systems**

V. Nelayev<sup>1</sup>, V. Barkaline<sup>2</sup>, T. Brechko<sup>3</sup>, A. Chashynski<sup>2</sup>, V. Lyskovski<sup>1</sup>, N. Mamedov<sup>4</sup> (<sup>1</sup>*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus;* <sup>2</sup>*Belarusian National Technical University, Minsk, Belarus;* <sup>3</sup>*University of Bialystok, Poland;* <sup>4</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P4-8 Bulk and surface electron states in quasi-one-dimensional  $Tl^{1+}Tl^{3+}Se_2$**

Z. Jahangirli<sup>1</sup>, K. Mimura<sup>2</sup>, K. Wakita<sup>3</sup>, S. Hamidov<sup>1</sup>, S. Motonami<sup>2</sup>, K. Imai<sup>3</sup>, Y. Shim<sup>2</sup>, H. Orudzhev<sup>4</sup>, N. Mamedov<sup>1</sup>, and F. Hashimzade<sup>1</sup> (<sup>1</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*Osaka Prefecture University, Japan;* <sup>3</sup>*Chiba Institute of Technology, Japan;* <sup>4</sup>*Azerbaijan Technical University, Baku, Azerbaijan*)

**P4-9 Optical properties and deformation potentials of  $A^2B^3C^6_4$  group compounds**

T. G. Kerimova, R.A. Guliev, I.A. Mamedova (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P4-10 Entropy of superlattices in a quantizing magnetic field**

B.M. Askerov<sup>1</sup>, S.R. Figarova<sup>1</sup>, M.M. Mahmudov<sup>1</sup>, V.R. Figarov<sup>2</sup> (<sup>1</sup>*Baku State University, Azerbaijan;* <sup>2</sup>*Institute of Physics, NAS, Baku, Azerbaijan*)

**P4-11 Carrier transport and electron charge distribution in  $TlInSe_2$**

K. Imai<sup>1</sup>, K. Abe<sup>2</sup>, K. Wakita<sup>1</sup>, Y. Shim<sup>2</sup>, S. Hamidov<sup>3</sup>, N. Mamedov<sup>3</sup> (<sup>1</sup>*Chiba Institute of Technology, Japan;* <sup>2</sup>*Osaka Prefecture University, Japan;* <sup>3</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P4-12 Experimental realization of the Dirac cone in 3D topological insulator of ternary chalcogenide  $TlBiSe_2$**

K. Kuroda,<sup>1</sup> M. Ye,<sup>1</sup> A. Kimura,<sup>1</sup> Y. Ueda,<sup>2</sup> K. Miyamoto,<sup>3</sup> T. Okuda,<sup>3</sup> K. Shimada,<sup>3</sup> H. Namatame<sup>3</sup> and M. Taniguchi<sup>1,3</sup> (<sup>1</sup>*Graduate School of Science, Hiroshima University, Japan;* <sup>2</sup>*Kure National College of Technology, Kure, Japan;* <sup>3</sup>*Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan*)

**P4-13 Dispersion relation of optical parameters of  $\text{Bi}_2\text{Te}_3\text{-Bi}_2\text{Se}_3$  thin films**

N. M. Abdullayev<sup>1</sup>, N.Z.Djalilov<sup>2</sup>, N.R.Memmedov<sup>2</sup>,  
I.T.Mamedova<sup>1</sup> (<sup>1</sup>Research and Development Center for High  
Technologies MCIT, Baku, Azerbaijan, <sup>2</sup>H.Abdullayev Institute of  
Physics, National Academy of Sciences, Baku, Azerbaijan)

**17:50-18:50 Poster session 5**

**P5-1 Phase stability and electronic structure of In-free photovoltaic compounds,  $\text{Cu}_2\text{ZnSnSe}_4$ ,  $\text{Cu}_2\text{CdSnSe}_4$ , and  $\text{Cu}_2\text{HgSnSe}_4$**

S. Nakamura, T. Maeda and T. Wada (Department of Materials Chemistry, Ryukoku University, Seta, Japan)

**P5-2 Carrier spectra in complex  $\text{GaAs}/\text{Al}_x\text{Ga}_{1-x}\text{As}/\text{In}_y\text{Al}_{1-y}\text{As}$  T-shaped superlattices**

T.H. Effendieva, R.R.Bashirov (Institute of Physics, Daghestan Scientific Center, Russian Academy of Sciences, Makhachkala, Russia)

**P5-3 On the heat capacities of  $(\text{Ti}, \text{Sn}) \text{O}_2$  thin films**

E. Eser<sup>1</sup>, H. Koç<sup>2</sup>, B. A. Mamedov<sup>1</sup>, and I. M. Askerov<sup>1</sup>  
<sup>1</sup>Department of Physics, Faculty of Arts and Sciences, Gaziosmanpasa University, Tokat, Turkey; <sup>2</sup> Department of Physics, Vocational School, Muş Alparslan University, Muş, Turkey

**P5-4 Estimation of the heat capacities of  $\text{Ti}_2\text{AlC}$  and  $\text{V}_2\text{AlC}$  crystals**

I.M.Askerov<sup>1</sup>, H. Koç<sup>2</sup>, E. Eser<sup>1</sup> (<sup>1</sup> Department of Physics, Faculty of Arts and Sciences, Gaziosmanpasa University, Tokat, Turkey; <sup>2</sup> Department of Physics, Faculty of Arts and Sciences, Alparslan University, Muş, Turkey)

**P5-5 Modeling and simulation of ferroelectric based MEMS for inertial measurement unit**

Z. Özer<sup>1</sup> and A. M. Mamedov<sup>2</sup> (<sup>1</sup>Mersin University, Adana, Turkey; <sup>2</sup>Physics Department, Cukurova University, Adana, Turkey)

**P5-6 Modeling of optical properties of reflectionless coatings on the basis of nanocomposite materials**  
*R. Karamaliyev<sup>1</sup>, Ch. Qajar<sup>2</sup>, T. Efendiev<sup>3</sup> (<sup>1</sup>Baku State University, Azerbaijan; <sup>2</sup>Institute of Physics, NAS, Baku, Azerbaijan; <sup>3</sup>B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)*

**17:50-18:50 Poster session 6**

**P6-1 Switching of multiples solitons in arrays of coupled cavities**  
*K. M. Aghdami<sup>1</sup>, R. Kheradmand<sup>2</sup> and R. Karimi<sup>2</sup> (<sup>1</sup>Physics Department, Payame-Noor University, Tehran, Iran; <sup>2</sup> Research Institute for Applied Physics and Astronomy, University of Tabriz, Iran)*

**P6-2 Control of self-focusing and self-defocusing in the array of Waveguides**  
*K. M. Aghdami, F. Mokhtari and A. Gharaati (Physics Department, Payame-Noor University, Tehran, Iran)*

**P6-3 Incoherent switching on/off of cavity solitons in semiconductor microresonators above laser threshold**  
*R. Kheradmand and M. Eslami (Photonics Group, Research Institute for Applied Physics and Astronomy, Tabriz University, Iran)*

**P6-4 Controlling and stabilizing of thermally travelling optical structures in semiconductor microresonators**  
*R. Kheradmand<sup>1</sup>, N. Montazeri<sup>1</sup> (<sup>1</sup> Research Institute for Applied Physics and Astronomy, University of Tabriz, Iran)*

- P6-5 Phosphor materials for solid state white light generation**  
R.B.Jabbarov<sup>1,2</sup>, N.N.Musayeva<sup>1,2</sup>, S.H. Abdullayeva<sup>1,2</sup> (<sup>1</sup>*H.M. Abdullayev Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*Research and Development Center for High Technologies, MCIT, Baku, Azerbaijan*)
- P6-6 Photoconductivity and photoluminescence spectra of CdIn<sub>2</sub>S<sub>4</sub>:Ti and CdIn<sub>2</sub>S<sub>4</sub>:Fe crystals**  
O. Kulikova, A. Siminel, A. Kuznetsov, V. Tezlevan, L. Kulyuk (*Institute of Applied Physics, Academy of Sciences of Moldova, Kishinev, Moldova*)
- P6-7 Fotoluminescence of ZnGa<sub>2</sub>Se<sub>4</sub> and ZnGa<sub>2</sub>Se<sub>4</sub>: Eu**  
B.G. Tagiyev<sup>1</sup>, O.B. Tagiyev<sup>1,2</sup>, S.G. Asadullayeva<sup>1</sup> (<sup>1</sup>*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan;* <sup>2</sup>*Baku Branch of Moscow Lomonosov State University, Azerbaijan*)
- P6-8 Laser heterostructures with ZnCdSe quantum well embedded in ZnMgSSe/ZnSe graded-index superlattice waveguide**  
G. P. Yablonskii<sup>1</sup>, A. G. Vainilovich<sup>1</sup>, E. V. Lutsenko<sup>1</sup>, I. V. Sedova<sup>2</sup>, S. V. Sorokin<sup>2</sup>, S. V. Gronin<sup>2</sup>, P. S. Kop'ev<sup>2</sup>, and S. V. Ivanov<sup>2</sup> (<sup>1</sup>*Stepanov Institute of Physics of NASB, Minsk, Belarus;* <sup>2</sup>*Ioffe Physical Technical Institute of RAS, St. Petersburg, Russia*)
- P6-9 Optical, luminescence and photovoltaic properties of layers and ZnO/CdS/CuInGaSe<sub>2</sub>/Mo/glass heterostructures for solar cells**  
E. V. Lutsenko<sup>1</sup>, A. G. Vainilovich<sup>1</sup>, M.V. Rzhetski<sup>1</sup>, V. N. Pavlovskii<sup>1</sup>, G. P. Yablonskii<sup>1</sup>, V.Y. Shiripov<sup>2</sup>, S. M. Nastachkin<sup>2</sup>, E.A. Hohlov<sup>2</sup> (<sup>1</sup>*Stepanov Institute of Physics of NASB, Minsk, Belarus;* <sup>2</sup>*IZOVAC Ltd, Minsk, Belarus*)

**P6-10 Light emission of the gas discharge from nanopores of zeolite**

N.N. Lebedeva, V.I. Orbukh, Ye.Yu. Bobrova, T.Z. Kuliyeva (*Baku State University, Azerbaijan*)

**P6-11 Analysis of the enhancing effect of rare earth ion co-doping on the red emission of  $\text{CaGa}_2\text{S}_4:\text{Mn}^{2+}$  in view of its decay time**

A.Suzuki<sup>1</sup>, Ch. Hidaka<sup>1</sup>, T. Takizawa<sup>1</sup>, Sh. Nomura<sup>2</sup> (<sup>1</sup>*Nihon University, Tokyo, Japan*; <sup>2</sup>*Tokyo University of Science, Japan*)

# September 30 (Thursday)

## Oral presentations

**9:00- 11:00**

### **Morning session**

Chairpersons:

Prof. E. Isaev (*Linkoping University, Sweden*)

Prof. A.V. Postnikov (*Paul Verlaine University – Metz, France*)

**9:00 I5-1 Theoretical study of quaternary compounds as thin-film solar cell absorber**

S-H. Wei

*National Renewable Energy Laboratory, Golden, USA*

**9:30 I5-2 Self-consistent GW and Bethe-Salpeter equation: applications to optoelectronic properties of multinary compounds**

J. Vidal<sup>1,2,3</sup>, S. Botti<sup>2,3,4</sup>, J.-F. Guillemoles<sup>1</sup> and L. Reining<sup>2,3</sup>

<sup>1</sup>*Institute for Research and Development of Photovoltaic Energy (IRDEP), Chatou, France*

<sup>2</sup>*Laboratoire des Solides Irradiés, École Polytechnique, France*

<sup>3</sup>*European Theoretical Spectroscopy Facility (ETSF)*

<sup>4</sup>*LPMCN, Université Claude Bernard Lyon I and CNRS, Villeurbanne, France*

**10:00 O5-1 Characteristics of chemical bonds in CuInSe<sub>2</sub>, and its thin film deposition processes used to fabricate high efficiency CIS solar cells**

T. Wada and T. Maeda

*Department of Materials Chemistry, Ryukoku University, Seta Otsu, Japan*

10:20 **O5-2** **Ab initio study of 3d transition metal doping of binary semiconductors for magnetic intermediate band photovoltaics**

P. Olsson<sup>1,2</sup>, C. Domain<sup>1,2</sup> and J.-F. Guillemoles<sup>1</sup>

<sup>1</sup>IRDEP, Chatou, France

<sup>2</sup>EDF R&D, Département MMC, Les Renardières, France

10:40 **O5-3** **The conception of e-transformation in wave-function and phonon engineering**

R. R. Bashirov

*Institute of Physics, Daghestan Scientific Center, Russian Academy of Sciences, Makhachkala, Russia*

11:00-11:20 **Coffee break**

11:20- 13:00 **Morning session**

Chairpersons:

Prof. H. Naito (*Osaka Prefecture University, Japan*)

Prof. B.G. Tagiev (*Institute of Physics, NAS, Azerbaijan*)

11:20 **I6-1** **Effect of REE co-doping on the Mn red emission in Ca and Sr thiogallates - Focusing on its mechanism through ESR study using single crystals**

T. Takizawa<sup>1</sup>, T. Obonai<sup>1</sup>, S.Nomura\*, and Ch. Hidaka<sup>1</sup>

<sup>1</sup>*Department of Physics, College of Humanities and Sciences, Nihon University, Tokyo, Japan*

\**Department of Electro Engineering, Tokyo University of Science, Japan*

11:50 **I6-2** **Radiative properties of halogen intercalated transition metal dichalcogenide layered crystals**

L. Kulyuk, A. Colev, C. Gherman

*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Republic of Moldova*

**12:20 O6-1 Photoluminescence of Cu(In,Ga)Se<sub>2</sub> in the solar cell preparation process**

S. Shirakata, S. Yodate, J. Honda and N. Iwado  
*Faculty of Engineering, Ehime University, Matsuyama, Ehime, Japan*

**12:40 O6-2 Excited states of the A and B free excitons in CuInSe<sub>2</sub>**

M.V. Yakushev<sup>1</sup>, F.Luckert<sup>1</sup>, R.W. Martin<sup>1</sup>, C. Faugeras<sup>2</sup>,  
A.V.Karotki<sup>3</sup> and A.V. Mudry<sup>1,3</sup>

<sup>1</sup>*Department of Physics, SUPA, Strathclyde University, Glasgow, UK*

<sup>2</sup>*Grenoble HMFL, France*

<sup>3</sup>*Scientific-Practical Material Research Centre of the National Academy of Science of Belarus, Minsk, Belarus*

**13:00-14:00 Lunch**

**14:00 -15:00 Afternoon session**

Chairperson:

*Prof. K. Wakita (Chiba Institute of Technology, Japan)*

**14:00 O6-3 Luminescence properties of barium thio- and selenogallates doped with Eu, Ce, Eu+Ce**

G. P. Yablonskii<sup>1</sup>, V. Z. Zubialevich<sup>1</sup>, E. V. Lutsenko<sup>1</sup>,  
A. M. Pashaev<sup>2,3</sup>, B. G. Tagiev<sup>2,3</sup>, O. B. Tagiev<sup>3,4</sup>,  
S. A. Abushov<sup>4</sup>

<sup>1</sup>*Institute of physics of NAS of Belarus, Minsk, Belarus*

<sup>2</sup>*Institute of Physics of NAS of Azerbaijan, Baku, Azerbaijan*

<sup>3</sup>*Academy of Aviation, Bina, Baku, Azerbaijan*

<sup>4</sup>*Baku branch of M.V. Lomonosov Moscow State University, Azerbaijan*

**14:20 O6-4 Effect of Ho co-doping on the long lasting emission in CaGa<sub>2</sub>S<sub>4</sub>:Eu**

Ch. Hidaka<sup>1</sup> and T. Takizawa<sup>1</sup>

<sup>1</sup>*Department of Physics, College of Humanities and Sciences, Nihon University, Tokyo, Japan*

**14:40 -16:10**      **Afternoon session**

Chairpersons:

Prof. C. Pettenkofer (*Helmholtz-Zentrum Berlin, Germany*)

Prof. A.I. Bayramov (*Institute of Physics, NAS, Azerbaijan*)

**14:40**    **I7-1**    **Chalcopyrite solar cells: Formation of the buffer/absorber interface and related transport mechanisms**

M. Rusu

*Institut Heterogene Materialsysteme, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany*

**15:10**    **I7-2**    **Thermoelectric functions in multinary intermetallic clathrates**

P. Rogl

*Institute of Physical Chemistry, University of Vienna, Austria*

**15:40**    **I7-3**    **Anisotropic physical properties in sulfosalt structures**

H. Dittrich, D. Topa, A. Stadler, J. Stöllinger, A. Pachler, G. Aigner

*Dep. Material Research and Physics, University of Salzburg, Austria*

**16:10-16:30**      **Coffee break**

**16:30 -17:30**      **Afternoon session**

Chairpersons:

Prof. J.-F. Guillemoles (*IRDEP, France*)

Prof. L. Kulyuk (*Institute of Applied Physics, MAS, Moldova*)

**16:30**    **O7-1**    **Electronic structure and magnetism in multiferroic material LuFe<sub>2</sub>O<sub>4</sub>:first-principles calculations and spectroscopic studies**

A.V. Postnikov<sup>1</sup>, K. Kuepper<sup>2</sup>, C. Taubitz<sup>3</sup>, C. Derks<sup>3</sup>, M. Neumann<sup>3</sup>, D.Prabhakaran<sup>4</sup> and S. J. Blundell<sup>4</sup>

<sup>1</sup>*LPMD, Institute Jean Barriol and Paul Verlaine University, Metz, France*

<sup>2</sup>*Institute of Ion Beam Physics and Materials Research, Dresden, Germany*

<sup>3</sup>*Department of Physics, University of Osnabrück, Germany*

<sup>4</sup>*Department of Physics, Clarendon Laboratory, University of Oxford, United Kingdom*

**16:50**    **O7-2**    **Surface and interface properties of chalcopyrite/ZnO interfaces**

C. Pettenkofer, A. Hofmann

*Helmholtz-Zentrum Berlin, Germany*

**17:10**    **O7-3**    **Time-resolved micro-photoluminescence studies of Cu(In,Ga)Se<sub>2</sub>**

T. Sakurai,<sup>1</sup> K. Taguchi,<sup>1</sup> M.M. Islam,<sup>1</sup> S. Ishizuka,<sup>2</sup> A. Yamada,<sup>2</sup> K. Matsubara,<sup>2</sup> S. Niki,<sup>2</sup> and K. Akimoto<sup>1</sup>

<sup>1</sup>*Institute of Applied Physics, University of Tsukuba, Japan.*

<sup>2</sup>*National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

**18:40**      **Closing**

# September 30 (Thursday)

## Poster presentations

(posters shall be placed on poster stands by 15:00 and removed from the stands between 18:30 and 18:40)

Chairpersons: Prof. O.B. Tagiev (*Institute of Physics, NAS, Azerbaijan*)  
Dr. Y. Shim (*Osaka Prefecture University, Japan*)

### 17:30-18:30 **Poster Session 7**

#### **P7-1 Thermoelectric properties of $Pb_{1-x}Mn_xTe$ single crystals**

E.A. Allahverdiyev, G.Z. Bagiyeva, G.M. Murtuzov, D.Sh. Abdinov (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

#### **P7-2 Magnetic properties of Co implanted $TlInS_2$ and $TlGaSe_2$ crystals**

T.G. Mammadov<sup>1</sup>, F. Mikailzade<sup>2</sup>, A.G. Şale<sup>2</sup>, S. Kazan<sup>2</sup>, R. Khaibullin<sup>3</sup>, N.I. Khalitov<sup>3</sup>, V.F. Valeev<sup>3</sup> (<sup>1</sup> *Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*; <sup>2</sup> *Department of Physics, Gebze Institute of Technology, Turkey*; <sup>3</sup> *Kazan Physical- Technical Institute, Kazan, Russia*)

#### **P7-3 Band gap engineering in $Cu(In,Ga)(S,Se)_2$ absorber layer by technological regimes of synthesis**

M.Tivanov<sup>1</sup>, E.Zaretskaya<sup>2</sup>, V.Gremenok<sup>2</sup>, V. Zalesski<sup>3</sup> (<sup>1</sup> *Belarusian State University, Minsk, Belarus*; <sup>2</sup> *Scientific-Practical Materials Research Centre NAS of Belarus, Minsk, Belarus*; <sup>3</sup> *B.I.Stepanov Institute of Physics NAS of Belarus, Minsk, Belarus*)

#### **P7-4 CdTe-based solar cells prepared by physical vapor deposition and close-spaced sublimation methods**

R.Hajimammadov<sup>1</sup>, N.Fathi<sup>1</sup>, M.Sadigov<sup>1</sup>, E.Mirzoyev<sup>1</sup>, A. Bayramov<sup>1</sup>, G. Khrypunov<sup>2</sup>, N.Klochko<sup>2</sup>, and T. Li<sup>2</sup> (<sup>1</sup> *Institute of Physics, National Academy of Sciences, Baku*,

Azerbaijan; <sup>2</sup> National Technical University “Kharkiv Polytechnic Institute”, Ukraine)

**P7-5 Peculiarities of I-V characteristics of tunnel MIS structures Al-p-Cd<sub>x</sub>Hg<sub>1-x</sub>Te**

E.K. Huseynov, N. J. Ismaylov (*Institute of Physics, National Academy of Sciences, Baku, Azerbaijan*)

**P7-6 Reflectance profile of BaTiO<sub>3</sub> on multilayer antireflection coating systems**

F. Karaomerlioglu (*Department of Electronic and Computer Education, Faculty of Tarsus Technical Education, Mersin University, Turkey*)

**P7-7 Quenching of short circuit current and excitonic decay in CuGaSe<sub>2</sub> single crystals**

I. Kasumoqlu, I.A.Mamedova, Q.S.Mehdiyev (*Institute of Physics, NAS, Baku, Azerbaijan*)

**P7-8 The impedance spectra and current voltage behavior of MSM junction structure**

A.Sertap Kavasoglu<sup>1,2</sup>, N. Kavasoglu<sup>1,2</sup>, O. Birgi<sup>1,2</sup>, and S. Oktik<sup>1,2</sup>  
(<sup>1</sup>Mugla University, Clean Energy Research & Development Centre, Turkey; <sup>2</sup>Mugla University, Faculty of Arts and Sciences, Department of Physics, Turkey)

**P7-9 Experimental investigation of photodetectivity on n-ZnO/p-Si heterojunction structure**

N.Kavasoglu<sup>1,2</sup>, A.Sertap Kavasoglu<sup>1,2</sup>, O.Pakma<sup>1,2</sup>, M.Kabakci<sup>1,2</sup>, O. Birgi<sup>1,2</sup>, S. Oktik<sup>1,2</sup> (<sup>1</sup> Mugla University Clean Energy Research & Development Centre, TURKEY; <sup>2</sup> Mugla University, Faculty of Arts and Sciences, Physics Department, TURKEY)

**P7-10 Single-phase cadmium telluride thin films deposited by electroless electrodeposition**

G. Khrypunov<sup>1</sup>, N. Klochko<sup>1</sup>, N. Volkova<sup>2</sup>, V. Lyubov<sup>1</sup>, T. Li<sup>1</sup>  
(<sup>1</sup>National Technical University “Kharkiv Polytechnic Institute”, Ukraine; <sup>2</sup> National Aerospace University “Kharkiv Aviation Institute”, Ukraine)

**P7-11 Low material and energy saving close box  $\text{CuInSe}_2$  film deposition technology**

G. Khrypunov, M. Khachenko (*National Technical University "Kharkiv Polytechnic Institute", Ukraine*)

**P7-12 Electrical and photoelectrical properties of multi-component copper chalcogenides  $\text{CuSnAsSe}_3$ ,  $\text{CuInAsSe}_3$  and  $\text{CuInAsS}_3$**

N. Melnikova<sup>1</sup>, A. Mollaev<sup>2</sup>, O. Kheifets<sup>1</sup>, L. Saypulaeva<sup>2</sup>, F. Gabibov<sup>2</sup>, A. Alibekov<sup>2</sup>, A. Babushkin<sup>1</sup> and K. Kurochka<sup>1</sup> (<sup>1</sup>*Low Temperature Physics Dept, Ural State University, Ekaterinburg, Russia;* <sup>2</sup>*Institute of Physics of Dagestan Scientific Centre of RAS, Makhachkala, Russia*)

**P7-13 Thermopower in the region of hopping conduction in  $(\text{TlInSe}_2)_{0.2}(\text{TlGaTe}_2)_{0.8}$**

S.N. Mustafaeva, A.I. Jabbarov (*Institute of Physics, National Academy of Sciences of Azerbaijan, Baku, Azerbaijan*)

**P7-14 Development of high ZT didymium-skutterudites: thermoelectric and mechanical properties, thermal expansion**

G.Rogl<sup>1,2,3</sup>, A. Grytsiv<sup>1</sup>, P.Rogl<sup>1</sup>, E. Bauer<sup>2</sup>, M. Zehetbauer<sup>3</sup> (<sup>1</sup>*Institute of Physical Chemistry, University of Vienna, Austria;* <sup>2</sup>*Institute of Solid State Physics, University of Technology, Wien, Austria;* <sup>3</sup>*Group Physics of Nanostructured Materials, University of Vienna, Austria*)

**P7-15 Thermal conductivity of  $\text{Sn}_{3(1-x)}\text{In}_{2x}\text{Te}_3$  semiconducting phase**

E.I. Rogacheva and O.N. Nashchekina (*National Technical University "Kharkov Polytechnic Institute", Ukraine*)

**P7-16 Structure and transport properties of the Pb<Bi>Te ternary semiconductor phase of variable composition based on PbTe**

E.I. Rogacheva, O.S. Vodorez and V.I. Pinegin (*National Technical University "Kharkov Polytechnic Institute", Ukraine*)

**P7-17 Impacts of electron irradiation on the optical and electrical properties of CIGS thin films and solar cells**

M. Sugiyama<sup>1</sup>, Y. Hirose<sup>1</sup>, M. Warasawa<sup>1</sup>, K. Takakura<sup>2</sup>, S. Kimura<sup>1</sup>, S. F. Chichibu<sup>3</sup> and H. Ohyama<sup>2</sup> (<sup>1</sup> *Department of Electrical Engineering, Tokyo University of Science, Japan;* <sup>2</sup> *Department of Information, Communication and Electronic Engineering, Kumamoto National College of Technology, Japan;* <sup>3</sup> *CANTech, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan*)

**P7-18 Sulfurization growth of SnS thin films and optimization of p-n-junction of SnS-related solar cells**

M. Sugiyama<sup>1</sup>, Y. Murata<sup>1</sup>, T. Shimizu<sup>1</sup>, N. Revathi<sup>2</sup>, C. Venkataiah<sup>2</sup>, K. Yoshida<sup>1</sup>, T. Sato<sup>1</sup>, and K. T. R. Reddy<sup>2</sup> (<sup>1</sup> *Department of Electrical Engineering, Tokyo University of Science, Noda, Japan;* <sup>2</sup> *Department of Physics, Sri Venkateswara University, Tirupati, India*)

**P7-19 Comparison of the valence band structure peculiarities in the Bi<sub>1-0.84</sub>-Sb<sub>0.16</sub>-Sn<sub>0.01</sub> and pure semiconducting Bi<sub>1-x</sub>Sb<sub>x</sub> alloys**

B. Tairov and E. Yuzbashov (*Institute of Physics, Azerbaijan National Academy of Sciences, Baku, Azerbaijan*)

**P7-20 Intermediate structural phase of Sm-substituted BiFeO<sub>3</sub>: multiferroic properties**

V.A. Khomchenko<sup>1</sup>, J.A. Paixão<sup>1</sup>, B.F.O. Costa<sup>1</sup>, I.O. Troyanchuk<sup>2</sup>, D.V. Karpinsky<sup>3</sup> and A.L. Kholkin<sup>3</sup> (<sup>1</sup> *CEMDRX/ Department of Physics, University of Coimbra, Portugal;* <sup>2</sup> *SSPA "Scientific Practical Materials Research Centre of NAS of*

Belarus”, Minsk, Belarus;<sup>3</sup>CICECO/ Department of Ceramics and Glass Engineering, University of Aveiro, Portugal)

**P7-21 Studies on ZnIn<sub>2</sub>Se<sub>4</sub> nano crystallites synthesized by chemical precipitation**

P. Babu<sup>1</sup>, N. Revathi<sup>1</sup>, T.Sato<sup>2</sup>, M.Sugiyama<sup>2</sup> and K.T.Ramakrishna Reddy<sup>1</sup> (<sup>1</sup>Thin Film Laboratory, Department of Physics, Sri Venkateswara University, Tirupati, India; <sup>2</sup>Department of Electrical Engineering, Tokyo University of Sciences, Noda, Japan)

**P7-22 Preparation and properties of co-evaporated Cu<sub>4</sub>SnS<sub>4</sub> layers**

V.P. Geethavani<sup>1</sup>, N. Revathi<sup>1</sup>, T. Sato<sup>2</sup>, M.Sugiyama<sup>2</sup> and K.T. Ramakrishna Reddy<sup>1</sup> (<sup>1</sup>Thin Film Laboratory, Department of Physics, Sri Venkateswara University, Tirupati, India; <sup>2</sup>Department of Electrical Engineering, Tokyo University of Sciences, Noda, Japan)

**P7-23 Preparation of Cu(In,Ga)Se<sub>2</sub> thin films with Ga content of around 0.8 and their solar cell application**

T. Yamaguchi<sup>1</sup>, Y. Asai<sup>1</sup> and T. Tanaka<sup>2</sup> (<sup>1</sup>Wakayama National College of Technology, Japan; <sup>2</sup> Saga University, Japan)

**P7-24 Photoelectric properties of Ox/Cd<sub>1-x</sub>Mn<sub>x</sub>Te heterostructures**

R.Yu.Petrus<sup>2</sup>, V.Yu.Rud<sup>3</sup>, Yu.V.Rud<sup>1</sup>, G.A.II'chuk<sup>2</sup>, V.V.Kusnezh<sup>2</sup> (<sup>1</sup>Ioffe Physicotechnical Institute, Russian Academy of Sciences, St.Petersburg, Russia; <sup>2</sup> National University “L'vivska Politekhnik”, L'viv, Ukraine; <sup>3</sup>St. Petersburg State Polytechnic University, Russia)

**P7-25 Phonons scattering mechanisms in Ga<sub>x</sub>In<sub>1-x</sub>As solid solutions**

M.I. Aliyev, I.X. Mammadov<sup>1</sup>, D.H. Arasly, R.N. Rahimov, A.A. Khalilova (Institute of Physics, Azerbaijan National Academy of Sciences, Baku, Azerbaijan)

**P7-26 Deep centers in single crystals  $(\text{TlGaS}_2)_{1-x}(\text{TlInSe}_2)_x$**   
E.M. Kerimova, F.I. Ismayilov, S.S. Abdinbekov,  
A.B. Magerramov, P.Y. Ismayilova, X. Sh. Valibayov, N.A. Aliyeva,  
A.A. Isayeva (*Institute of Physics, Azerbaijan National Academy  
of Sciences, Baku, Azerbaijan*)

**17:30-18:30 Poster session 8**

**P8-1 Conversion of the chemical energy into the electric energy on the surface of semiconductor – catalyst**  
A.M. Pashayev, M.A. Talibi, G.A. Mamedova (*Institute of Physics,  
Azerbaijan National Academy of Sciences, Baku, Azerbaijan*)

**P8-2 Effects of cathode microstructure on the performance of electrolyte supported solid oxide fuel cells**  
Mahmut D. Mat<sup>1</sup>, Yüksel Kaplan<sup>1</sup>, Beycan İbrahimoğlu<sup>2</sup> (<sup>1</sup>*Nigde  
University, Mechanical Engineering Department, Nigde, Türkiye;*  
<sup>2</sup>*Gazi University, Mechanical Engineering Department,  
Ankara, Türkiye*)

**P8-3 High performance anode supported solid oxide fuel cells by ion conductor phase Impregnation**  
Mahmut D. Mat<sup>1</sup>, Yüksel Kaplan<sup>1</sup>, Beycan İbrahimoğlu<sup>2</sup>  
(<sup>1</sup>*Nigde University, Mechanical Engineering Department,  
Nigde, Türkiye;* <sup>2</sup>*Gazi University, Mechanical Engineering  
Department, Ankara, Türkiye*)

**P8-4 Plasma application in fuel cells and hydrogen technologies**  
B. İbrahimoğlu<sup>1</sup>, İ. İbrahimoğlu<sup>2</sup>, S. Kuliyeç<sup>3</sup> (<sup>1</sup>*Gazi University, Faculty  
of Engineering, Ankara, Turkey;* <sup>2</sup>*Anadolu Plasma Teknolojileri  
Merkezi, Ankara, Turkey;* <sup>3</sup>*Vestel Defence Industry, Gölbaşı-  
Ankara, Turkey*)

For notes



