



**22<sup>nd</sup> INTERNATIONAL SYMPOSIUM ON BORON,  
BORIDES AND RELATED MATERIALS**  
8-12 SEPTEMBER 2024  
DEDEMAN ISTANBUL HOTEL • ISTANBUL / TÜRKİYE

**SEPTEMBER 08, 2024, SUNDAY**

- 16:00-18:00 Registration  
18:00-20:00 Welcome Reception

**SEPTEMBER 09, 2024, MONDAY**

- 08:00-08:45 Registration
- 08:45-09:00 Opening Remarks (Mehmet Somer)
- 09:00-10:30 **SESSION I - SYNTHESIS OF NEW BORON MATERIALS (Chair: Özge Balcı-Çağırın)**
- 09:00-09:30 **INVITED SPEAKER 1**  
TOPOLOGICAL DESIGN AND SYNTHESIS OF A NOVEL ATOMIC BORON SHEET  
*Iwao Matsuda (The University Of Tokyo, Japan)*
- 09:30-10:00 **INVITED SPEAKER 2**  
BORON IN THE 2D LIMIT BOROPHENE BOROPHANE AND BEYOND  
*Qiucheng Li, (Westlake University, China)*
- 10:00-10:20 **O1. A NEW OF TYPE ELEMENTAL BORON PHASE SYNTHESIZED BY THE RAPID QUENCHING SEARCH FOR SEMICONDUCTING QUASICRYSTAL**  
*Kaoru Kimura<sup>6</sup> (The Institute Of Statistical Mathematics, Research Center For Materials Informatics, Japan)*  
Kunio Yubuta<sup>1</sup>, Akira Yasuhara<sup>2</sup>, Akihito Yamano<sup>3</sup>, Takanobu Hiroto<sup>4</sup>, Junpei Okada<sup>5</sup>, Kazumasa Sugiyama<sup>5</sup>
- 10:20 -11:00 **COFFEE BREAK**
- 11:00-12:40 **SESSION I (Continued)- SYNTHESIS OF NEW BORON MATERIALS (Chair: Mehmet Somer)**
- 11:00-11:20 **O2. NEUTRON RADIATION ATTENUATION CALCULATIONS FOR GRAPHENE NANOPATELETS REINFORCED BORON CARBIDE TITANIUM DIBORIDE CERAMICS**  
*Mirac Kamislioglu<sup>5</sup> (TENMAK, Türkiye)*  
Berkay Uygun<sup>1</sup>, Onur Erbay<sup>2</sup>, Bülent Büyük<sup>3</sup>, Nuri Yorulmaz<sup>4</sup>, Filiz Çınar Şahin<sup>1</sup>, İskender Atilla Reyhancan<sup>1</sup>
- 11:20-11:40 **O3. LATTICE EXPANSION DUE TO HYDROGEN ABSORPTION INTO THE RHOMBOHEDRAL BORON**  
*Takanobu Hiroto<sup>1</sup> (National Institute For Material Science, Japan<sup>1</sup>)*  
Hossein Sepehri-amin<sup>1</sup>, Naoki Uemura<sup>2</sup>, Wataru Hayami<sup>3</sup>, Tadakatsu Ohkubo<sup>3</sup>, Tadashi Ogitsu<sup>4</sup>, Kohei Soga<sup>5</sup>, Kaoru Kimura<sup>6</sup>
- 11:40-12:00 **O4. INNOVATIVE SYNTHESIS AT HIGH PRESSURE AND HIGH TEMPERATURE OF NEW COMPOUNDS IN THE TERNARY B C SI SYSTEM**  
*Martin Demoucron<sup>1</sup> (Sorbonne University, Impmc, France)*  
Alexandre Courac<sup>1</sup>, Natalia Trespalacios Villalobos<sup>1</sup>, Amandine Séné<sup>2</sup>, Marzena Baron<sup>2</sup>, David Portehault<sup>2</sup>, Mohamed Mezouar<sup>3</sup>, Yann Le Godec<sup>1</sup>
- 12:00-12:20 **O5. SYSTEM THORIUM – BORON REVISED**  
*Peter Rogl<sup>1</sup> (University Of Vienna, Austria<sup>1</sup>)*  
Jiri Bursik<sup>2</sup>, Henri Noel<sup>3</sup>, Gerald Giester<sup>4</sup>
- 12:20-12:40 **O6. BORON NITRIDE NANOTUBES AND ITS INDUSTRIAL APPLICATIONS**  
*Jaewoo Kim<sup>1</sup> (Naieel Technology, R&d Center, Korea, South<sup>1</sup>)*  
Eunkwang Park<sup>1</sup>, Ki-in Choi<sup>1</sup>, Numan Yanar<sup>1</sup>



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**12:40 -14:00 LUNCH**

**14:00-16:00 SESSION II NEW SYNTHESIS STRATEGIES OF BORON COMPOUNDS (Chair: Iwao Matsuda)**

**14:00-14:30 INVITED SPEAKER 3**

SYNTHESIS STRATEGY FOR METASTABLE COMPOUNDS WITH COVALENT FRAMEWORKS

*Masaya Fujioka (National Institute of Advanced Industrial Science and Technology, Japan)*

**14:30-14:50 O7. FLEXIBILITY OF CRUCIBLE FREE SYNTHESIS OF BORIDES**

*Iryna Antonyshyn<sup>1</sup>, (Fhi Mpg, Inorganic Chemistry, Germany<sup>1</sup>)*

Büsra Sevdaroglu<sup>2</sup>, Marcus Schmidt<sup>2</sup>, Peter Höhn<sup>2</sup>, Ulrich Burkhardt<sup>2</sup>

**14:30-14:50 O8. THERMODYNAMICS AND CRYSTALLOGRAPHY OF HARD LIGHT ELEMENT BORON RICH COMPOUNDS BY IN SITU X RAY DIFFRACTION UNDER HIGH PRESSURE HIGH TEMPERATURE CONDITIONS**

*Alexandre Courac<sup>1</sup> (Sorbonne University, Impmc, France<sup>1</sup>)*

Martin Demoucron<sup>2</sup>, Vladimir Solozhenko<sup>3</sup>, Yann Le Godec<sup>2</sup>

**15:10-15:30 O9. LARGE SCALE PRODUCTION OF ELEMENTAL NANO BORON POWDER**

*Selçuk Acar<sup>1</sup>, (Pavezyum Kimya, Production, Türkiye<sup>1</sup>)*

Mehmet Somer<sup>2</sup>

**15:30 -16:00 COFFEE BREAK**

**16:00-18:00 SESSION II (Continued)- NEW SYNTHESIS STRATEGIES OF BORON COMPOUNDS (Chair: Kaoru Kimura)**

**16:00 - 16:30 INVITED SPEAKER 4**

NAVIGATING UNCHARTED PHASE SPACES SYNTHESIS STRUCTURE AND PROPERTIES OF TERNARY BORIDES CONTAINING ALKALI OR ALKALINE EARTH AND TRANSITION METALS

*Julia Zaikina<sup>1</sup>, (Iowa State University, United States<sup>1</sup>)*

Paul Oftedahl<sup>1</sup>, Thomas Seymour-cozzini<sup>1</sup>

**16:30 -16:50 O10. PRESSURE TEMPERATURE STABILITY DIAGRAM OF MGB<sub>2</sub> – CONSEQUENCES FOR SINTERING OF DENSE MGB<sub>2</sub> CERAMICS**

*Fabian Delorme<sup>1</sup> (ISL, France<sup>1</sup>)*

Clotilde Lechevalier-boissel<sup>1</sup>, Eugénie Cellier<sup>1</sup>, Julie Rossit<sup>1</sup>, Florence Moitrier<sup>1</sup>, Yiteng Xing<sup>2</sup>, Pierre Bernstein<sup>2</sup>, Jacques Noudem<sup>2</sup>, Sébastien Lemonnier<sup>1</sup>

**16:50 - 17:10 O11. PRODUCTION OF NANO SIZED ZINC BORATE FROM BORAX**

*Özden Acar<sup>2</sup>, (TENMAK, Türkiye<sup>2</sup>)*

Kerem Uslu<sup>1</sup>, Sinem Erdemir Guran<sup>1</sup>, Nasibe Arslan<sup>1</sup>, Fatih Akkurt<sup>3</sup>, Esra Babür<sup>4</sup>

**17:10 – 17:30 O12. SOLID STATE SYNTHESIS OF MN<sub>2</sub>ALB<sub>2</sub> MAB PHASE VIA MECHANICAL ACTIVATION ASSISTED ANNEALING**

*Berk Şenyurt<sup>1</sup>, (Bursa Technical University, Türkiye<sup>1</sup>)*

Nazli Akçamli<sup>1</sup>, Duygu Ağaoğulları<sup>2</sup>

**17:30 – 17:50 O13. POTENTIAL USE OF ZnO ANCHORED BORON INDUSTRIAL WASTE AS A NOVEL ECO FRIENDLY ACTIVATOR IN CIS POLYBUTADIENE NATURAL RUBBER COMPOSITES**

*Deniz Akin Sahbaz<sup>1</sup>, (Pamukkale University, Türkiye<sup>1</sup>)*

Erol Goksu<sup>2</sup>



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## SEPTEMBER 10, 2024, TUESDAY

08:30-09:00	Registration
09:00-10:30	SESSION III- BORON IN ENERGY APPLICATIONS (Chair: Iryna Antonyshyn)
09:00-09:30	<b>INVITED SPEAKER 5</b> EFFECT OF DISORDER ON MAGNETISM AND THERMOELECTRIC PROPERTIES OF BORIDES <i>Takao Mori</i> <sup>1</sup> ( <i>National Institute For Materials Science (NIMS), Japan</i> <sup>1</sup> )
09:30-09:50	<b>O14.</b> BORON HYDRIDES A FUEL OF CHOICE FOR P B FUSION <i>Marcel Ehn</i> <sup>1</sup> , ( <i>Institute Of Inorganic Chemistry Of The Czech Academy Of Sciences, Department Of Synthesis, Slovakia</i> <sup>1</sup> ) Jonathan Bould <sup>1</sup> , Michael Londesborough <sup>1</sup> , Miroslav Krus <sup>2</sup>
09:50-10:10	<b>O15.</b> EPR INVESTIGATION AND SUPERCAPACITOR DEVICE PERFORMANCES OF HAFNIUM DIBORIDE BASED MATERIALS <i>Ahmet Güngör</i> <sup>1</sup> , ( <i>Sabancı University, Türkiye</i> <sup>1</sup> ) Aybike Paksoy <sup>2</sup> , Ipek Deniz Yildirim <sup>1</sup> , Özge Balcı-Çağiran <sup>3</sup> , Emre Erdem <sup>1</sup>
10:10-10:30	<b>O16.</b> THERMOELECTRIC PROPERTIES OF (Sr Eu)B <sub>6</sub> SYNTHESIZED VIA MAGNESIOTHERMIC REDUCTION <i>Masatoshi Takeda</i> <sup>1</sup> ( <i>Nagaoka University Of Technology, Japan</i> <sup>1</sup> ) <i>Kazuya Miyagawa</i> <sup>1</sup> , <i>Masaaki Baba</i> <sup>1</sup>
10:30 -11:00	Coffee Break
11:00-12:40	SESSION III (Continued)- BORON IN ENERGY APPLICATIONS (Chair: Takao Mori)
11:00 -11:20	<b>O17.</b> SCIENCE AND APPLICATIONS OF HYDROGEN CONTAINING BORON <i>Tadashi Ogitsu</i> <sup>1</sup> , ( <i>Lawrence Livermore National Laboratory, United States</i> <sup>1</sup> ) Naoki Uemura <sup>2</sup> , Takanobu Hiroto <sup>3</sup> , Wataru Hayami <sup>3</sup> , Kohei Soga <sup>4</sup> , Kaoru Kimura <sup>5</sup>
11:20-11:40	<b>O18.</b> EARTH ABUNDANT BORIDES ELECTROCATALYSTS FOR HYDROGEN PRODUCTION <i>Boniface Fokwa</i> <sup>1</sup> ( <i>Uc Riverside, Chemistry, United States</i> <sup>1</sup> )
11:40-12:00	<b>O19.</b> - PRODUCTION OF HIGH CAPACITY POROUS NICKEL BORIDES VIA NOVEL MOLTEN SALT ELECTROLYSIS <i>Mehtap Arslan Kaba</i> <sup>1</sup> ( <i>Istanbul Technical University, Türkiye</i> <sup>1</sup> ) Servet Timur <sup>1</sup> , Guldem Kartal Sireli <sup>1</sup>
12:00-12:20	<b>O20.</b> THE EFFECT OF BORONIZATION ON THE OER BEHAVIOUR OF V NI INTERMETALLIC COMPOUNDS <i>Büşra Sevdaroğlu</i> <sup>1</sup> , ( <i>Max Planck Institute, Germany</i> <sup>1</sup> ) Ulrich Burkhardt <sup>1</sup> , Marcus Schmidt <sup>1</sup> , Peter Höhn <sup>1</sup> , Yuri Grin <sup>1</sup> , Iryna Antonyshyn <sup>2</sup>
12:20-12:40	<b>O21.</b> HIGH SELECTIVITY CATALYTIC DECOMPOSITION OF FORMIC ACID ON HYDROGEN BORIDE <i>Zihao Kang</i> <sup>1</sup> , ( <i>University Of Tsukuba, Japan</i> <sup>1</sup> ) Shin-ichi Ito <sup>2</sup> , Natsumi Noguchi <sup>1</sup> , Mei Yuan <sup>1</sup> , Iwao Matsuda <sup>3</sup> , Tadahiro Fujitani <sup>4</sup> , Ryuki Tsuji <sup>2</sup> , Takahiro Kondo <sup>2</sup>
12:40 -14:00	LUNCH



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### 14:00-15:30 SESSION IV – THEORETICAL STUDIES (Chair: Quicheng Li)

14:00-14:30

#### INVITED SPEAKER 6

PECULIARITIES OF CHEMICAL BONDING IN BORIDES FROM THE POSITION SPACE VIEW

Yuri Grin<sup>1</sup>, (MPI CPFS, Germany<sup>1</sup>)

Frank R. Wagner<sup>1</sup>

14:30-14:50

**O22.** POSSIBLE SUPERCONDUCTIVITY FOR LAYERED METAL BORIDE CARBIDE COMPOUNDS MB<sub>2</sub>C<sub>2</sub> (M = ALKALI ALKALINE EARTH OR RARE EARTH METALS)

Jean-François Halet<sup>1</sup>, (University Of Rennes, Iscr, Rennes-France<sup>1</sup>)

Wataru Hayami<sup>2</sup>, Xavier Rocquefelte<sup>1</sup>

14:50-15:10

**O23.** THERMODYNAMIC STABILITY AND POSSIBLE PHASE TRANSITIONS OF ELEMENTAL BORON ALLOTROPES

Wataru Hayami<sup>1</sup>, (National Institute For Materials Science, Japan<sup>1</sup>)

Takanobu Hiroto<sup>2</sup>, Kohei Soga<sup>3</sup>, Tadashi Ogitsu<sup>4</sup>, Kaoru Kimura<sup>5</sup>

15:10- 16:30

### COFFEE BREAK & POSTER SESSION

The list of poster presentations can be found at the end of the document.

16:30-18:00

### SESSION IV (Continued)- THEORETICAL STUDIES (Chair: Yuri Grin)

16:30-17:00

#### INVITED SPEAKER 7

THEORETICAL STUDY OF POINT DEFECTS IN BORON CARBIDES AND ALPHA BORON TOWARDS SPIN DEFECT PROPERTIES

Nathalie Vast<sup>2</sup>-(Laboratoire Des Solides Irradiés- Cea ,France<sup>2</sup>)

Yeonsoo Cho<sup>1</sup>, Alan Custodio Dos Reis Souza<sup>2</sup>, Jelena Sjakste<sup>3</sup>, Olivier Hardouin Duparc<sup>3</sup>

17:00-17:20

**O24.** BORON PLANAR CLUSTERS GROUND STATE PARAMETERS CALCULATED IN DIATOMIC MOLECULAR MODEL

Levan Chkhartishvili<sup>1</sup>(Georgian Technical University, Georgia<sup>1</sup>)

17:20-17:40

**O25.** FIRST PRINCIPLES INVESTIGATION OF THE B Pt PHASE DIAGRAM

Michael Widom<sup>1</sup>,(Carnegie Mellon, Physics United States<sup>1</sup>)

19:00

INTERNATIONAL SCIENTIFIC COMMITTEE MEETING



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## SEPTEMBER 11, 2024, WEDNESDAY

09:00-10:30	<b>SESSION V- COMPOSITES AND ALLOYS OF BORON (Chair: Duygu Ağaoğulları)</b>
09:00-09:30	<b>INVITED SPEAKER 8</b> SELECTIVE LASER MELTING OF IN SITU TITANIUM-TITANIUM BORIDE COMPOSITES PROCESSING MICROSTRUCTURE AND MECHANICAL PROPERTIES <i>Prashanth Konda Gokuldoss<sup>1</sup>(Tallinn University Of Technology, Estonia<sup>1</sup>)</i>
09:30-09:50	<b>O26. HIGH TEMPERATURE BENDING STRENGTH AND FRACTOGRAPHY FOR Mo<sub>2</sub>NiB<sub>2</sub> Ni CERMETS</b> <i>Satofumi Maruyama<sup>1</sup>(Tokyo City Univ.,Japan<sup>2</sup>)</i> Eri Takahashi <sup>1</sup> , Naoto Shiraki <sup>1</sup> , Ai Momozawa <sup>2</sup> , Ryosuke Maki <sup>3</sup> , Toshiyuki Nishimura <sup>4</sup> , Hideki Kakisawa <sup>4</sup>
09:50-10:10	<b>O27. SYNTHESIS PHASE COMPOSITIONS AND PROPERTIES OF SINTERED AlMgB<sub>14</sub> BASED BORIDE CERAMIC COMPOSITES</b> <i>Özden Acar<sup>1</sup>(TENMAK,Türkiye<sup>1</sup>)</i> Muhammet Nasuh Arik <sup>2</sup> , Burçe Çirakman <sup>2</sup>
10:10-10:30	<b>O28. BORON NITRIDE BASED COATING APPLICATIONS ON FUSED CAST AZS REFRACTORIES USED IN SODA LIME GLASS FURNACES</b> <i>Ahmet Melih Üstün<sup>1</sup>(Şişecam,Türkiye<sup>1</sup>)</i> Emin Burak Izmirlioğlu <sup>1</sup> , Özge Balcı-Çağiran <sup>2</sup>
10:30 -11:00	<b>Coffee Break</b>
11:00-12:40	<b>SESSION V (Continued)- COMPOSITES AND ALLOYS OF BORON (Chair: Peter Rogl)</b>
11:00 -11:30	<b>INVITED SPEAKER 9</b> OVERVIEW OF MECHANOCHEMICAL SYNTHESIS INVESTIGATIONS ON BORIDE BASED ALLOYS AT PARTICULATE MATERIALS LABORATORIES (PML) ISTANBUL TECHNICAL UNIVERSITY <i>M. Lütfi Öveçoğlu<sup>1</sup>(Mef University/istanbul Technical University, Türkiye<sup>1</sup>)</i>
11:30-11:50	<b>O29. ABSOLUTE EVALUATION OF ANALYTICAL UNCERTAINTY IN QUANTITATIVE DETERMINATION OF BORON</b> <i>Takehiro Sumita<sup>1</sup>(Kyushu University, Japan<sup>1</sup>)</i> Takahito Osawa <sup>2</sup> , I-huan Chiu <sup>2</sup> , Atsushi Ikeda-ohno <sup>3</sup> , Noritaka Saito <sup>1</sup> , Kunihiro Nakashima <sup>1</sup>
11:50-12:10	<b>O30. CHEMICAL VAPOR DEPOSITION OF BORON NITRIDE ON CARBON FIBERS USING TRIMETHYL BORATE</b> <i>Muhammet Nasuh Arik<sup>1</sup>(TENMAK, Türkiye<sup>1</sup>)</i> Cennet Yildirim <sup>1</sup> , Özden Acar <sup>1</sup> , Zeliha Bengisu Yakişik <sup>1</sup> , Uğur Nakaş <sup>2</sup> , Korhan Şahin <sup>2</sup> , Erdan Çelik <sup>2</sup>
12:10-12:30	<b>O31. EFFECT OF BORON COMPOUNDS ON THERMAL AND MECHANICAL PROPERTIES OF UNSATURATED POLYESTER RESIN</b> <i>Nasibe Arslan<sup>1</sup>(TENMAK,Türkiye<sup>1</sup>)</i> Kerem Uslu <sup>1</sup> , Esra Babür <sup>2</sup> , Merve Bilge <sup>3</sup> , Sinem Erdemir Guran <sup>1</sup>
12:30-12:50	<b>O32. THE INVESTIGATION OF HYDROPHOBICITY VARIATIONS OF H BN EMBEDDED SiO<sub>2</sub> Na<sub>2</sub>O B<sub>2</sub>O<sub>3</sub> Bi<sub>2</sub>O<sub>3</sub> ZnO F GLASS CERAMIC COATING SYSTEMS</b> <i>Yaren Gücüyener<sup>1</sup>(Yildiz Technical University,Türkiye<sup>1</sup>)</i> Elvan Nermin <sup>1</sup> , Gamze Öztürk <sup>1</sup> , Sinan Daloğlu <sup>1</sup> , Oğuz Karahmet <sup>1</sup> , Buğra Çiçek <sup>1</sup> , Metallurgical And Materials Engineering, Istanbul-Türkiye <sup>1</sup>

12:50 -14:00 **LUNCH**





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<b>14:00-15:40</b>	<b>SESSION V (Continued)- COMPOSITES AND ALLOYS OF BORON (Chairs: M. Lütfi Öveçoğlu &amp; Julia Zaikina)</b>
<b>14:00-14:20</b>	<b>O33. EXAMINING THE USE OF ALTERNATIVE BORON SOURCES IN GLASS CERAMIC COATING PRODUCTION</b> <i>Didem Özkaya<sup>1</sup>, (AKCOAT, Türkiye<sup>1</sup>)</i> Tamer Cengiz <sup>1</sup> , Talha Doğan Özerdem <sup>1</sup> , Ömer Furkan Ötken <sup>1</sup> , Sinan Daloğlu <sup>1</sup> , Oğuz Karahmet <sup>1</sup> , Buğra Çiçek <sup>2</sup> , Selçuk Bulut Yazan <sup>1</sup>
<b>14:20-14:40</b>	<b>O34. KINETICS OF ZINC BORATE EPOXY CURING BY USING DIFFERENTIAL SCANNING CALORIMETRY</b> <i>Sumeyye Caner<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)</i> Berdan Sakalli <sup>2</sup> , Zeliha Bengisu Yakışık <sup>1</sup> , Esra Babür <sup>3</sup> , Cennet Yildirim <sup>2</sup> , Gülden Kabakçı <sup>4</sup> , Güler Bengüsu Tezel <sup>5</sup> , Mert Kiliñçel <sup>4</sup>
<b>14:40-15:00</b>	<b>O35. - DEVELOPMENT AND CHARACTERIZATION OF OXIDATION RESISTIVE ULTRA HIGH TEMPERATURE BORIDE CERAMICS</b> <i>Simge Saltik<sup>1</sup>, (ROKETSAN, Türkiye<sup>1</sup>)</i> Hande Özel Piçak <sup>1</sup> , Bilgehan Çetinöz Öksüz <sup>1</sup> , Barış Akgün <sup>1</sup> , Olcay Elmali Meço <sup>1</sup> , Özge Balcı-Çağırın <sup>2</sup>
<b>14:40-15:00</b>	<b>O36. TAILORABLE THERMAL MANAGEMENT IN POLYAMIDE COMPOSITES WITH CARBON AND BORON REINFORCEMENTS</b> <i>Berdan Sakalli<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)</i> Süleyman Güney <sup>2</sup> , Cennet Yildirim <sup>1</sup> , Burcu Saner Okan <sup>3</sup>
<b>15:00-15:20</b>	<b>O37. EFFECT OF REPRODUCIBLE IRRADIATION ON BORON AND GADOLINIUM DOPED COMPOSITES</b> <i>Zeliha Bengisu Yakışık<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)</i> Cennet Yildirim <sup>2</sup> , Miraç Kamaşlıođlu <sup>3</sup> , Mehmet Erdem <sup>4</sup> , Iskender Atilla Reyhancan <sup>5</sup> , Onur Erbay <sup>6</sup>
<b>15:20-15:40</b>	<b>O38. ANGLE RESOLVED MAGNETORESISTANCE IN THE STRONGLY ANISOTROPIC QUANTUM MAGNET TmB4</b> <i>Slavomir Gabani<sup>1</sup>, (Institute Of Experimental Physics, Slovakia<sup>1</sup>)</i> Julius Backai <sup>1</sup> , Gabriel Pristas <sup>1</sup> , Matus Orendac <sup>1</sup> , Emil Gazo <sup>2</sup> , Kirill Krasikov <sup>3</sup> , Nikolay Sluchanko <sup>3</sup> , Konrad Siemensmeyer <sup>4</sup> , Natalya Shitsevalova <sup>5</sup> , Karol Flachbart <sup>1</sup>
<b>15:40-16:00</b>	<b>P8. DEVELOPMENT OF B4C TiB2 CERAMIC MATRIX COMPOSITES FOR HIGH IMPACT HIGH TEMPERATURE APPLICATIONS</b> <i>Emirhan Karadađli<sup>1</sup>, (ROKETSAN, Türkiye<sup>1</sup>)</i> Irem Sude Geven <sup>1</sup> , Ahmet Kaan Toksoy <sup>1</sup> , Besim Gökçe Dara <sup>1</sup> , Buğra Çiçek <sup>2</sup>
<b>16:00</b>	<b>Transportation to the BOAT</b>
<b>18:00-22:00</b>	<b>Bosphorus Cruise &amp; Gala Dinner</b>



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## SEPTEMBER 12, 2024, THURSDAY

09:00-10:30	<b>SESSION VI- NANOSTRUCTURES OF BORON-RELATED MATERIALS (Chair: Ahmet Turan)</b>
09:00-09:30	<b>INVITED SPEAKER 10</b> USING MOLTEN SALTS TO DELIVER FUNCTIONAL BORON-BASED NANOMATERIALS: FROM REACTIVITY INSIGHTS TO ELECTROCATALYSIS <i>David Portehault, (Sorbonne University, France)</i>
09:30-09:50	<b>O39. EXPLORATION OF HYDROGEN DESORPTION FROM HB SHEETS</b> <i>Yukihiro Yasuda<sup>1</sup>, (University Of Tsukuba, Japan<sup>1</sup>)</i> Kazuho Goto <sup>1</sup> , Natsumi Noguchi <sup>1</sup> , Yuki Nakahira <sup>2</sup> , Reina Utsumi <sup>2</sup> , Hiroyuki Saitoh <sup>2</sup> , Satoshi Nakano <sup>3</sup> , Shin-ichi Ito <sup>4</sup> , Miwa Hikichi <sup>4</sup> , Ryuki Tsuji <sup>4</sup> , Ikutaro Hamada <sup>5</sup> , Shin-ichi Orimo <sup>6</sup> , Takahiro Kondo <sup>4</sup>
09:50-10:10	<b>O40. ADSORPTION PROPERTIES OF NH<sub>3</sub> ON HYDROGEN BORIDE SHEETS</b> <i>Kosei Fukuda<sup>1</sup>, (University Of Tsukuba, Japan<sup>1</sup>)</i> Shin-ichi Ito <sup>2</sup> , Miwa Hikichi <sup>2</sup> , Iwao Matsuda <sup>3</sup> , Ryuki Tsuji <sup>2</sup> , Takahiro Kondo <sup>4</sup>
10:10-10:30	<b>O41. SYNTHESIS AND MILLING OF MGCOB<sub>2</sub>O<sub>5</sub> (COBALT MAGNESIUM RED BLUE BORATE) PIGMENT AND EXAMINATION OF COLOR PROPERTIES IN DIFFERENT APPLICATIONS</b> <i>Emre Aslan<sup>1</sup>, (AKCOAT, Türkiye<sup>1</sup>)</i> Emine Yeşilci <sup>1</sup> , Emre Toy <sup>1</sup> , Alejandro Grijalbo <sup>1</sup> , Selçuk Bulut Yazan <sup>1</sup> , Buğra Çiçek <sup>2</sup>
10:30 -11:00	<b>COFFEE BREAK</b>
11:00-12:40	<b>SESSION VII – SYNTHESIS OF HIGH – TECH BORON PRODUCTS (Chair: Michael Widom)</b>
11:00 -11:20	<b>O42. <sup>11</sup>B-NMR INVESTIGATIONS ON BORON-RICH BORIDES</b> <i>Harald Hillebrecht<sup>1</sup>, (Freiburg University, Germany<sup>1</sup>)</i> Martin Ludwig <sup>1</sup> , Anke Schaub <sup>1</sup>
11:20-11:40	<b>O43. SYNTHESIS AND CHARACTERIZATION BORON DOPED HYDROXYAPATITE FOR BONE TISSUE ENGINEERING APPLICATIONS</b> <i>Sema Akbaba<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)</i> Ahmet Engin Pazarceviren <sup>2</sup> , Senem Ozge Turacli Karagüven <sup>3</sup> , Zafer Evis <sup>2</sup> , Aysen Tezcaner <sup>2</sup>
11:40-12:00	<b>O44. EFFECT OF TANTALUM BORIDE ON FIVE and SIX COMPONENT (HfTiZr Mn Mo W Cr) B<sub>2</sub> HIGH ENTROPY DIBORIDE CERAMICS PRODUCED VIA POWDER METALLURGY</b> <i>Ilayda Süzer<sup>1</sup>, (Istanbul Technical University, Türkiye<sup>1</sup>)</i> Amir Akbari <sup>1</sup> , Kübra Gürçan Bayrak <sup>2</sup> , Siddika Mert Dinç-Ülkü Seven <sup>1</sup> , M. Lütfi Öveçoğlu <sup>1</sup> , Duygu Ağaoğulları <sup>1</sup>
12:00-12:20	<b>O45. A STEP CHANGE IN THE SEARCH SPACE FOR LUMINESCENT MACROPOLYHEDRAL BORANE CLUSTERS</b> <i>Jonathan Bould<sup>1</sup>, (Institute of Inorganic Chemistry of The Czech Academy of Sciences, Synthesis, Czechia<sup>1</sup>)</i>
12:20-12:40	<b>O46. DESIGN OF A NEW TYPE OF 2D TRANSITION METAL BORIDES MBENES</b> <i>Veysel Emre Özgüle<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)</i> Burçe Çirakman <sup>2</sup> , Özden Acar <sup>1</sup>
12:40-13:00	<b>O47. EFFECTS OF DIFFERENT LOCAL PLANTS COMBINED WITH BORON ON WOUND HEALING AND SKIN AGING</b> <i>Hanife Ardahanlı<sup>1</sup>, (Kafkas Üniversitesi Türkiye<sup>1</sup>)</i> Ramazan Demirel <sup>2</sup> , Celal Şahin Ermutlu <sup>3</sup> , Pinar Bayram <sup>4</sup> , Hilmi Nuhoğlu <sup>5</sup> , Meryem İçen <sup>2</sup> , Alican Yılmaz <sup>3</sup> , Özkan Özden <sup>2</sup>
13:00-13:10	<b>CLOSING REMARKS</b>



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**POSTER SESSION**

- P1 Mo<sub>2</sub>TMB<sub>2</sub> (TM Fe Co Ni) AS CATHODES FOR WATER ELECTROLYSIS**  
*Fatma Aras<sup>1</sup>, (Max-planck-institut Für Chemische Physik Fester Stoffe, Germany<sup>1</sup>)*  
Ulrich Burkhardt<sup>1</sup>, Marcus Schmidt<sup>1</sup>, Gudrun Auffermann<sup>1</sup>, Simone G. Alterdorf<sup>1</sup>, Yuri Grin<sup>1</sup>, Iryna Antonyshyn<sup>2</sup>
- P2 FORMATION OF B<sub>4</sub>C–W COMPOSITES WITH SANDWICH AND MULTILAYERED MORPHOLOGIES**  
*Levan Chkhartishvili<sup>1</sup>, (Georgian Technical University, Georgia<sup>1</sup>)*  
Natia Barbakadze<sup>2</sup>, Otar Tsagareishvili<sup>3</sup>, Archil Mikeladze<sup>3</sup>, Oliko Lekashvili<sup>2</sup>, Ketevan Kochiashvili<sup>2</sup>, Roin Chedia<sup>2</sup>
- P3 BORON CARBIDE–TITANIUM DIBORIDE QUASIEUTETIC MODIFIED TUNGSTEN CARBIDE BASED HARD ALLOYS**  
*Levan Chkhartishvili<sup>1</sup>, (Georgian Technical University, Georgia<sup>1</sup>)*  
Archil Mikeladze<sup>1</sup>, Otar Tsagareishvili<sup>1</sup>, Tamaz Batsikadze<sup>2</sup>, Roin Chedia<sup>3</sup>,
- P4 FABRICATION OF ZrB<sub>2</sub> SiC AND ITS RELATED COMPOSITES BY SPS FOR THERMAL PROTECTION SYSTEM**  
*Ai Momozawa<sup>1</sup>, (Tokyo City Univeristy, Japan<sup>1</sup>)*  
David Elsner<sup>2</sup>, Honoka Morishita<sup>3</sup>, Satofumi Maruyama<sup>4</sup>, Ryota Kobaykobayashi<sup>5</sup>, Georg Herdrich<sup>2</sup>, Adam Pegan<sup>2</sup>, Kimiya Komurasaki<sup>6</sup>
- P5 AN EFFECTIVE PHENYLBORONIC ACID AND DOXORUBICIN DUAL RELEASING HYDROGEL SYSTEM FOR MELANOMA**  
*Öykü Irmak Dikkatli<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)*  
Sema Akbaba<sup>1</sup>, Özlem Darcansoy Işeri<sup>2</sup>
- P6 IN SITU SYNTHESIS AND CHARACTERIZATION OF TERNARY TiC TiB<sub>2</sub> Al<sub>2</sub>O<sub>3</sub> COMPOSITES**  
*Berk Şenyurt<sup>1</sup>, (Bursa Technical University, Türkiye<sup>1</sup>)*  
Havvanur Balci Önder<sup>1</sup>, Mustafa Yunus Kaya<sup>1</sup>, Nazli Akçamli<sup>1</sup>
- P7 3D PRINTED PLA SCAFFOLD COATED WITH CALCIUM FRUCTOBORATE AND HYDROXYAPATITE LOADED GELMA HYDROGEL FOR BONE TISSUE ENGINEERING**  
*Kübra Kahremanoğlu<sup>1</sup>, (TENMAK, Türkiye<sup>1</sup>)*  
Sema Akbaba<sup>1</sup>, Bedirhan Güneş<sup>1</sup>
- P8 DEVELOPMENT OF B<sub>4</sub>C TiB<sub>2</sub> CERAMIC MATRIX COMPOSITES FOR HIGH IMPACT HIGH TEMPERATURE APPLICATIONS**  
*Emirhan Karadağlı<sup>1</sup>, (ROKETSAN, Türkiye<sup>1</sup>)*  
Irem Sude Geven<sup>1</sup>, Ahmet Kaan Toksoy<sup>1</sup>, Besim Gökçe Dara<sup>1</sup>, Buğra Çiçek<sup>2</sup>
- P9 PERFORMANCE OF NANOSCALE HYDROGEN STORAGE MATERIALS TITANIUM HYDRIDE SUPPORTED BY GRAPHENE AND HYDROGEN BORIDE SHEETS**  
*Mei Yuan<sup>1</sup>, (University Of Tsukuba, Japan<sup>1</sup>)*  
Natsumi Noguchi<sup>1</sup>, Zihao Kang<sup>1</sup>, Xiaoni Zhang<sup>2</sup>, Iwao Mastsuda<sup>2</sup>, Shin-ichi Orimo<sup>3</sup>, Ryuki Tsuji<sup>4</sup>, Takahiro Kondo<sup>4</sup>
- P10 METAL BORIDES AS ADVANCED ELECTRODES FOR HIGH PERFORMANCE SUPERCAPACITORS**  
*Mehmet Saatci<sup>1</sup>, (Izmir Institute Of Technology, Türkiye<sup>1</sup>)*  
Ahmet Güngör<sup>2</sup>, Aybike Paksoy<sup>3</sup>, Emre Erdem<sup>2</sup>, Özge Balcı-Çağiran<sup>1</sup>





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- P11 RAPID SIMULTANEOUS SYNTHESIS AND DENSIFICATION OF HARD MANGANESE BORIDES VIA REACTIVE SPARK PLASMA SINTERING**  
*Salem Bin Dhuban<sup>1</sup>, (University Of Tsukuba, Japan<sup>1</sup>)*  
Hyoungwon Son<sup>2</sup>, Takao Mori<sup>1</sup>
- P12 Pilot Scale Production of Metal Borides with a Special Furnace Design to Prevent Boron Oxide Loss at High Temperatures**  
*Naz Altaç<sup>1</sup>, (Pavezyum, Türkiye<sup>1</sup>)*  
Çağla Taşkin<sup>1</sup>, Selçuk Acar<sup>2</sup>, Kamil Kiraz<sup>3</sup>, Özge Balcı-Çağırın<sup>4</sup>, Mehmet Suat Somer<sup>5</sup>
- P13 SUPERCONDUCTIVITY IN FILAMENTARY CHANNELS IN LAB6 HEXABORIDE WITH DYNAMIC CHARGE STRIPES**  
*Natalya Shitsevalova<sup>4</sup>(Frantsevich Institute for Problems of Materials Science of NANU, Ukraine<sup>4</sup>)*  
Nikolay Sluchanko<sup>1</sup>, Andrey Azarevich<sup>1</sup>, Alexey Bogach<sup>1</sup>, Kirill Krasikov<sup>1</sup>, Sergey Gavrilkin<sup>2</sup>, Alexey Tsvetkov<sup>2</sup>, Slavomir Gabani<sup>3</sup>, Karol Flachbart<sup>3</sup>, , Ol'ga Khrykina<sup>5</sup>, Nadezda Bolotina<sup>5</sup>, Vasilisa Gridshina<sup>5</sup>
- P14 MAGNETIC PHASE DIAGRAMS OF ANTIFERROMAGNET DYB12 WITH JAHN TELLER LATTICE INSTABILITY AND ELECTRON PHASE SEPARATION**  
*Natalya Shitsevalova<sup>4</sup>(Frantsevich Institute for Problems of Materials Science of NANU, Ukraine<sup>4</sup>)*  
Andrey Azarevich<sup>1</sup>, Alexey Bogach<sup>1</sup>, Kirill Krasikov<sup>1</sup>, Nikolay Sluchanko<sup>1</sup>, Sergey Gavrilkin<sup>2</sup>, Alexey Tsvetkov<sup>2</sup>, Slavomir Gabani<sup>3</sup>, Karol Flachbart<sup>3</sup>, Artem Khoroshilov<sup>1</sup>
- P15 SUBSTITUTION EFFECTS ON THE CRYSTAL STRUCTURE AND HARDNESS OF Mo<sub>2</sub>NiB<sub>2</sub> HARD MATERIALS**  
*Satofumi Maruyama<sup>1</sup>, (Tokyo City University, Japan<sup>1</sup>)*  
Shota Ichijo<sup>1</sup>, Eri Takahashi<sup>1</sup>, Ryosuke Maki<sup>2</sup>, Ai Momozawa<sup>3</sup>
- P16 WHITE EMISSIVE SINGLE MOLECULE FROM MULTIPLE LUMINESCENCE THROUGH CASCADE ENERGY TRANSFER INDOLOCARBAZOLYL ORTHO CARBORANYL LUMINOPHORES**  
*Kang Mun Lee<sup>1</sup> (Kangwon National University, Korea, South<sup>1</sup>)*
- P17 SPARK PLASMA SINTERING OF TiB<sub>2</sub> PRODUCED BY SELF PROPAGATING HIGH TEMPERATURE SYNTHESIS**  
*Ahmet Turan<sup>1</sup>, (Yeditepe University, Türkiye<sup>1</sup>)*  
Filiz Cinar Sahin<sup>2</sup>, Gultekin Goller<sup>2</sup>, Onuralp Yücel<sup>2</sup>
- P18 DFT ANALYSIS OF THE HYDROGEN INDUCED STRUCTURAL TRANSFORMATION OF  $\beta$  BORON**  
*Naoki Uemura<sup>1</sup>, (Kyoto University Of Advanced Science, Japan<sup>1</sup>)*  
Tadashi Ogitsu<sup>2</sup>, Takanobu Hiroto<sup>3</sup>, Wataru Hayami<sup>3</sup>, Kohei Soga<sup>4</sup>, Kaoru Kimura<sup>5</sup>
- P19 THEORETICAL STUDY OF SPIN DEFECTS WITH AN HUBBARD MODEL COMBINED WITH DENSITY FUNCTIONAL THEORY CALCULATIONS**  
*Nathalie Vast<sup>1</sup>(CNRS, IMPMC, France<sup>1</sup>)*  
Alan Custodio Dos Reis Souza<sup>1</sup>, Mariya Romanova<sup>2</sup>, Yeonsoo Cho<sup>3</sup>, Jelena Sjakste<sup>4</sup> Michele Casula<sup>5</sup>
- P20 ALBEB AND Al<sub>3</sub>BC – BORON WITH THE UNIQUE OXIDATION NUMBER –V**  
*Harald Hillebrecht<sup>1</sup>, (Freiburg University Germany<sup>1</sup>)*  
Martin Ludwig<sup>1</sup>, Anke Schaub<sup>1</sup>, Martin Ade<sup>1</sup>