

MATERIALS 2011: A REPORT

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Materials 2011 (November 30 to December 02, 2011) was the second conference of its kind on Materials Processing, Characterization, Properties and their Economic Potential organized by the Pakistan Materials Society at Materials Research Laboratory, University of Peshawar. The Higher Education Commission of Pakistan, Pakistan Science Foundation and Materials Research Laboratory sponsored the 3-Day event.

Dr. Khalid Khan, additional secretary, higher education Khyber Pukhtunkhwa (KPK) facilitated the inaugural session in an excellent manner. The inaugural session was chaired by the Vice Chancellor, University of Peshawar, KPK. The registration disk was opened at 8.00 AM and the program started with recitation from the Holy Quran. Prof. Fazal-ur-Rahman Sethi, Director Institute of Physics & Electronics, welcomed the guests and delegates and termed the event a historic one. The first technical talk of the inaugural session was given by the young scientist, Shah Haider Khan (Institute of Physics and Electronics, University of Peshawar, Pakistan) on "Room Temperature Kinetic Solidification of Nano-confined Water Layers". This paper was co-authored by Peter M Hoffmann, Department of Physics, Wayne State University, Detroit, USA. The second talk on "Bulk Nano-structured Materials" was presented by M. Daniel S. Pirzada, PINSTECH, Islamabad. The Principal Organizer of the event, Prof. Yaseen Iqbal introduced the aims and short and long term goals of the event and educated the audience about the significance of Materials Science and Engineering in the economic development of a country. He presented his talk titled "A new superstructure in $(\text{Li}_x\text{Ag}_{1-x})\text{NbO}_3$ ", co-authored by Hidayat Ullah Khan, I. M. Reaney and I. Sterianou. These talks were highly technical and impressive.

Prof. Azmat Hayat highly appreciated the activity and emphasized on maximum advertisement of such healthy activities in academic institutions. He appreciated the continuous efforts of Prof. Iqbal in introducing and developing a research culture in Materials Science in the University of Peshawar and in the region.

The first technical session was devoted to Prof. Mian Majeed, the founder head of the Department of Physics, University of Peshawar. This session was chaired by Prof. M Riaz Khan, Dean, Faculty of Numerical & Physical Sciences, University of Peshawar while Prof. Abdul Mateen (ex-Vice chancellor, UoP) and a close friend of Prof. Mian Majeed graced the session as the chief guest. The session was started with the general introduction to Prof. Mian Majeed by the Principal Organizer. He informed the audience that Prof. Mian Majeed did his PhD in 1945 from UK in theoretical Physics and started his carrier from Government College Lahore where he nurtured Prof. Abdul Salam (Nobel Laureate) and Dr. Ashfaq Ahmad (ex-chairman, Pakistan atomic energy commission) and many more.

One of the last students of Prof. Mian Majeed and Director, Institute of Physics & Electronics, Prof. Fazal-ur-Rahman Sethi, informed the audience about the contributions of his teacher and the significance of the Department of Physics founded by Prof. Mian Majeed. Renowned economist and intellectual, Prof. A Mateen (a close friend and colleague of Prof. A Majeed Mian) informed the audience about the straight-forward and bold personality of his friend and gave a detail account of the positive impact of such personalities on the development of a nation. He emphasized upon the need of such intellectuals for the resolution of the current issues regarding peace, economic and socio-political development of the region. He insisted that the efforts of Prof. Y Iqbal in introducing research culture in the institution and organizing conferences on Materials Processing, Characterization and Properties will prove a key to the economic development of the region.

The third session of the 1st day was chaired by Prof. Fazle Ahmad Khalid, Pro-rector, Ghulam Ishaq Institute of Science & Technology and the Guest of Honour was Dr. M Daniel S Pirzada. The first talk of the session titled Comparative study of $\text{NiFe}_{2-x}\text{Al}_x\text{O}_4$ ferrite nanoparticles synthesized by chemical co-precipitation and sol-gel combustion techniques by I.H.Gul and Erum Pervaiz. The second talk of the

session was on Temperature dependent analysis of Mn-Zn nano-ferrites by H Anwar and Asghari Maqsood.

Abstracts for the following talks were submitted and most of them were presented in a scientific manner:

1. A new superstructure in $(\text{Li}_x\text{Ag}_{1-x})\text{NbO}_3$ ($0.05 < x < 0.10$), H. U. Khan, I. M. Reaney, I. Sterianou and Y. Iqbal
2. Hydrothermal Synthesis and Characterization of nanosized Zinc Cobaltite Spinel Ceramic, Shahid Khan Durrani, Anam Asif, Ubaid ur Rehman, Nazir Hussain and Shahid Naveed
3. Comparative study of $\text{NiFe}_{2-x}\text{Al}_x\text{O}_4$ ferrite nanoparticles synthesized by chemical co-precipitation and sol-gel combustion techniques, I. H. Gul, Erum Pervaiz
4. Thermal Analysis and Encapsulation of Spent Ion Exchange Resin in Borosilicate Glass, N. Hamodi, K. Papadopoulou and Y. Iqbal
5. An Overview of Osmotic Power Generation and its Scope in Pakistan, Syed Waqar Hasan and Syed Faraz Hasan
6. Determination of Thermal Stability of Polyaniline-Dodecylbenzene Sulfonic Acid Salt, Salma Gul, Anwar-ul-Haq Ali Shah, Salma Bilal
7. Temperature dependent structural and electrical analysis of Mn-Zn nano ferrites, Humaira Anwar, Asghari Maqsood
8. Kinetic Investigation of Chromium (III) Removal by Strong Acid Exchanger Amberlyst-15(H^+), K. H. Shah, S. Mustafa, A. Naeem, M. Waseem, T. Ahmad
9. Annealing effects on surface morphology, thickness and chemical phases of Sr-Cu-O thin film deposited by MOCVD, Afzal Khan, Carmen Jimenez and Jean-luc Deschanvers
10. Fabrication of Alumina Wares by Slip Casting Technique by M. Arif, S. K. Durrani, M. Akram, N. Hussain and B. A. Hasan
11. Pulsed DC Plasma Nitriding of AISI-316 stainless steel and mild steel in $\text{N}_2\text{-H}_2$ mixture, A. Saeed, A. W. Khan, M. Khalid, Z. Iqbal, M. Shafiq, M. Zakauallah
12. Structural, Magnetic and Optical Properties of Undoped Co-Evaporated ZnO Thin Films, Akif Safeen, Kashif Safeen, Shahzad Naseem and Saira Riaz
13. Synthesis and Characterization of Completely Soluble Polypyrrole Salts via Inverse Emulsion Polymerization Using a Mixture of Chloroform and 2- Butanol as a Dispersing Medium, Mohammad Sohail^a, Salma Bilal^a and Anwar-ul-Haq Ali Shah
14. The effect of processing conditions on the microwave dielectric properties of $\text{SrCa}_4\text{Nb}_4\text{TiO}_{17}$ and $\text{Ca}_5\text{Nb}_4\text{TiO}_{17}$ ceramics, Abdul Manan, Yaseen Iqbal, I.M. Reaney, Ibrahim Qazi
15. Bulk Nanostructured Materials From Severe Plastic Deformation: A Technical Review, Muhammad Daniel Saeed Pirzada
16. Development of a dispersion process for co-ferrites nano-particles in an epoxy matrix and the resulting electrical, dielectric, Microwave and mechanical properties, Ahmad Faraz, Nasir Mahmood Ahmad, Asghari Maqsood
17. Comparative Study of Aluminum 6065 and 7075 in Hydrazine, M. Akram, Imran Reza, F. Karim, N. Hussain
18. Micrometer and nanometer scale patterning of functional ceramics and composite materials with soft-lithography, Dr. Sajid U. Khan & Dr. Ibrahim Qazi
19. Room Temperature Kinetic Solidification of Nanoconfined Water Layers Shah H. Khan, Peter M. Hoffmann, department of Physics, Wayne State University, Detroit, USA

All the manuscripts received in time were reviewed and published in various issues of JPMS. Posters and un-reviewed manuscripts were included in the conference proceedings of Materials 2011.

A total of 17 abstracts (listed below) were received for poster presentation in the event:

1. Processing and characterization of $\text{Ba}_{(0.7)}\text{Sr}_{(0.3)}\text{TiO}_3$ ceramic via chemical route by Asad Ullah, A. Naeem, Y. Iqbal, A. Mehmood
2. Pulsed dc screen cage plasma ionitriding reactor for hardening of steels, A. Saeed, M. Waqar, M. Zakaullah
3. Phase and microstructural analysis of the Nickel Phthalocyanine thin film, Mutabar Shah, M. R. Khan, Majid Khan
4. Synthesis and characterization of iron hydroxide materials for the effective removal of arsenate from water, Abdul Naeem, Salah-ud-Din, Muhammad Humayun, Tahira Mahmood, Tauqeer Ahmad
5. Evaluation of sintering, microstructural and electrical properties of SiO_2 doped LiNbO_3 ceramics, Tahira Mahmood, Sadaf Tasneem, Yaseen Iqbal, Abdul naeem
6. Fabrication and Characterization of Plasma Treated $\text{Co}_{78}\text{B}_{22}$ Magnetic Tunnel Junctions by Sobia Jabeen
7. Advanced Engineering Polymers, Muhammad Adil, Shehzad Akbar, Imran Khan
8. Influence of Cr^{3+} Substitution on Structural, Electrical, Dielectric & Magnetic properties of $\text{CoCr}_x\text{Fe}_{2-x}\text{O}_4$ prepared by Sol Gel Auto Combustion and Co-precipitation methods, Erum Pervaiz, I.H.Gul
9. Comparative Study of Aluminum 6065 and 7075 in Hydrazine, M. Akram, Imran Reza, F. Karim, N. Hussain
10. Metallic Foams, Muhammad Daud Khan, Sajid Anwar, Muhammad Nasir Khan
11. Phase and microstructure of chromite: A different approach by Aqib Ali Khan, Yaseen Iqbal
12. Phase and Microstructural Characterization of Hazara Barite, Pakistan by Sajad Ali, Yaseen Iqbal and Rick Ubic
13. Characteristics of Dolomite from Swabi, Khyber Pakhtunkhwa (Pakistan) for its Use as a Raw Material in Fertilizer Production by Muhammad Fahad, Yaseen Iqbal and Rick Ubic.
14. The effect of Ta_2O_5 - and ZnO -doping on the Curie temperature of BaTiO_3 by Yaseen Iqbal and Asad Jamal
15. The effect of processing conditions on the microwave dielectric properties of $\text{SrCa}_4\text{Nb}_4\text{TiO}_{17}$ and $\text{Ca}_5\text{Nb}_4\text{TiO}_{17}$ ceramics by Abdul Manan, Yaseen Iqbal, I.M. Reaney and Ibrahim Qazi.
16. Phase and microstructural analysis of the Nickel Phthalocyanine thin film by Mutabar Shah, M. R. Khan, Majid Khan
17. Synthesis and characterization of Pd nano-particles supported on Zirconia for the catalytic oxidation of Benzyl Alcohol in solvent free conditions by Mohammad Ilyas, Mohsin Siddique

Various sessions of the 3-Day Conference were chaired by senior academicians and scientists like Prof. Fazle Ahmad Khalid, Prof. Fazal-ur-Rahman Sethi, Dr. Daniel Pirzada, Prof. Farooq Swati and Engr. Wazir Muhammad.

The closing ceremony was held on December 02, 2011 with Prof. Ihsan Ali, VC, Abdul Wali Khan University, and Minister for Culture, Tourism and Museums, Khyber Pukhtunkhwa, Aqil Shah as the chief guest. The first talk of the closing ceremony was on Annealing effects on Sr-Cu-O thin film deposited by MOCVD presented by Dr. Afzal Khan. Dr. Salma Bilal presented her talk Determination of Thermal Stability of Polyaniline-Dodecyl- benzene Sulfonic Acid Salt. The third talk of the session was on the Processing effects on the MW properties of Titanates by Abdul Manan. The key talk of the session titled Globalization of Science was presented by renowned educationist and professor of chemistry, Prof. Fida Muhammad of GIK Institute of Science & Technology, Topi (Swabi).

The Principal Organizer of the event, Prof. Iqbal presented the following conference resolution and handed over the resolution to the Chief Guest:

Conference resolution Materials 2011

1. The government should address the issues hindering development of natural and mineral resources in KPK in general and tribal belt in particular.
2. In the past, even with meager resources huge projects like Islamia College Peshawar, University of Peshawar etc. were established which were the need of the day. Today we have all the resources so the government must establish institutions in term of academia and applied sciences for economical development.
3. Material research has proved instrumental in the development of many technologically advanced countries. Our region is famous for its mineral potential; Institute of material must be established in the province.
4. Special funds should be allocated for higher studies in the field of material science and other sciences required for economic development of the country and bringing our education at par with the developed world.

Prof. Iqbal gave a detailed talk on Materials Science and Engineering and highlighted its significance for the economic development of Pakistan in general and Khyber Pukhtun Khwa in particular. He emphasized upon the fact that nations whose culture and education are not consistent with their natural resources never develop. Mineral and natural resources are major strengths of Pakistan and we need institutes of Materials Science and Engineering in our country to train our youth in our own resources and optimize the utilization of our human, natural and mineral resources. This approach has already been tested in several developed countries and can be equally instrumental in our economic development.

Prof. Iqbal acknowledged and appreciated the tremendous support extended by Higher Education Commission, Pakistan and Pakistan Science Foundation, Islamabad. He thanked the chair, chief guest, all the participants, organizers and all those who contributed to the organization of this grand event.

The chairman of the session, Prof. Ihsan Ali, appreciated the organizers for their effort and struggle, and highlighting the need for tailoring our curricula and education to meet the need of the day, he offered his every possible cooperation. He invited the principal organizer to initiate such activities in Abdul Wali Khan University and promised every support in promotion of such healthy activities.

The chief guest, Mr. Aqil Shah appreciated the organizers for organizing the conference. He said that his government aims at encouraging such activities.

At the end of the session, prizes were distributed among the 1st, 2nd and 3rd position holders in the poster competition. Prof. Fazal-ur-Rahman Sethi, Director, Institute of Physics & Electronics, UOP thanked the delegates, guests and all the contributors for their untiring efforts in making the event a real success and declared the closure of the event.