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Symposium Report

Golden Jubilee Young Researcher's Symposium

on

Emerging Trends in Textile/Fibre Research and Application

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The Department of Textile Technology, Indian Institute of Technology, Delhi (IITD) organized Golden Jubilee Young Researcher's symposium on Emerging Trends in Textile/Fibre Research & Applications during 11-12 March 2011 at the IITD campus. The main objective of this unique conference was to bring all young researchers/students, working in the area of textiles and polymer/fibre technology, together for mutual exchange of ideas and presentation of their latest/original results. This symposium was also intended to facilitate interaction between the scientific elite of today and tomorrow and to encourage and inspire budding researchers from all over India to develop a collaborative network for the benefit of future research in the field of textiles and fibre science. The symposium also comprised a national level essay contest on futuristic textiles in which selected essays covering novel ideas in the field of textiles were presented. The symposium was open only for students and researchers below 35 years of age.

In all 41 research papers for oral presentation and 9 essays for the essay contest were received. All the research papers and essays were thoroughly evaluated by a panel of distinguished professors. The panel recommended 9 research papers for oral presentation while rest were accepted for poster presentations. Similarly, for the essay contest 4 best essays were selected for final presentation.

The symposium was inaugurated by Prof. Kushal Sen , Head, Department of Textile Technology, IITD, and Prof. Deshdeep Sahdev, Department of Physics, IIT-Kanpur. Prof. Deshdeep Sahdev was the Chief Guest and keynote speaker for this event. Dr. Rajiv Srivastava and Dr. Bhanu Nandan, Assistant Professors at the Department of Textile Technology, IITD and coordinators of the symposium, delivered introductory speech and vote of thanks. Dr. Srivastava and Dr. Nandan pointed out the importance of organizing such symposiums where focus is on the achievements of budding researchers and thanked all the participants for the enthusiasm. Prof. Sahdev motivated the young participants by his talk on development of indigenous scanning-tunnelling microscope and his journey of developing such a microscope from a basic academia lab scale project to a successful business entrepreneurship. Prof. Sen, in his lecture, encouraged the youngsters to think seriously about choosing research as career option and emphasized on the need of indigenous technology.

There were total 9 oral presentations covering hot research areas in the field of textiles/fibres/polymers. Mr Saravanan Kumar from ICGEB, New Delhi showed the use of high throughput and hyphenated technology to explore structural aspects and dynamics of cotton fibre. Results of study performed on cellular response of limbal epithelial stem cells on electrospun poly-ε-caprolactone nanofibrous scaffolds for ocular surface reconstruction were presented by Ms Shweta Sharma, a research student from AIIMS, New Delhi. Mr Jayant Udakhe from Wool Research Association, Thane demonstrated the use of sustainable, eco-friendly techniques like plasma and enzyme technology to develop itch-free woollen garments. A synthetic route for reactive dye was described in the paper presented by Ms Neha Khurana, a student of ICT-Mumbai. The dye not only imparted improved colouration to cotton fabric but also enhanced the softness of the fabric. Surface functionalization of polycaprolactone filament by oxygen plasma was the topic of research paper presented by Mr Kumar Krishnanand, a student

from IITD. The functionalities introduced on the surface were shown to act as precursors for other reactions such as for immobilization of biomolecules. The starch obtained from waste grains was shown to be useful as thickener paste for printing vat dyes on cotton by Mr Javed Sheikh from ICT-Mumbai. The development of biomimetic silk fibroin based scaffold and its use for intervertebral disc tissue engineering was presented by Ms Maumita Bhattacharjee from IITD. Mr Amol Patil from BTRA, Mumbai presented a novel two step *in-situ* polymerization method of conjugated polymers, viz. polypyrrole and polyaniline, onto textile fabric substrates. The method ensured uniform deposition of the polymer as well as controlled reaction rate through its dynamic synthesis. The method consisted of modifying a laboratory jigger machine as a polymer reactor with low temperature synthesis of polypyrrole through *in-situ* polymerization. All the oral presentations were followed by detailed question-answer sessions. Expert panel, comprised distinguished faculty members from IITD, evaluated the presentations. Ms Neha Khurana received first prize. Mr Amol was awarded second prize for his efforts.

In the Bhawna Soni National Essay Contest, the authors of the four selected entries presented their essays. Ms Shruti Surender, a student from PSG College of Technology, Coimbatore presented her essay on 'Advanced Wound Dressings' where she emphasised on bioactive wound dressings based on alginate and chitosan and imparting antimicrobial and blood clotting characteristics to such dressings using natural material like honey and tea tree oil. Mr S. Suresh Babu from Jaya Engineering College, Chennai talked about the use of spider silk in developing scaffolds for cartilage regeneration. In third essay presentation by Ms Nidhi Goyal, a student from IITD, the use of finishes by different techniques, such as microencapsulation, plasma processing, conducting and pressure sensitive coatings, etc. was depicted to develop smart textiles. Ms Sunita Sanwaria from IITD, in fourth and last essay presentation of the event, talked about the futuristic textiles emphasising on the development of Electronic Textiles. Every essay presentation was allowed for 20 min followed by 10 min of discussion with panel on experts. Essays were evaluated by a committee comprising distinguished faculty members. First prize for Bhawna Soni National Essay Contest 2011 was awarded to Ms Shruti Surender while Ms Nidhi Goyal earned the second prize.

Students from various institutes/universities across the country presented their original work which covered a wide span of research activities in the areas including novel methods of textile modifications, textile engineering, tissue engineering, nano-composites, smart polymers and advanced dyes for various fabrics. Ms Geeta Pandey from IITD presented her work on development of PCL/PLCL based braided scaffold and showed application of such scaffolds in tissue engineering as implants for blood vessels. She received first prize under poster presentation category. Ms Priti Tayade from ICT-Mumbai presented a poster on dyeing of natural fibres with *Cuminum cyminum L* as a natural dye. In this research work cotton, wool and silk fabrics were pre-mordanted with different mordants, viz. tannic acid, alum, ferrous sulphate, copper sulphate, stannous chloride and potassium dichromate, and then dyed with the dye extracted from Cumin seed to get different shades. The fastness properties and colour values were found to be enhanced by changing the style of mordanting. Ms Priti was awarded second prize. Poster presentation under Young Researcher's Symposium was greatly appreciated by all the delegates.

The closing ceremony of the Symposium was graced by the presence of Prof. S M Ishtiaque, Deputy Director–Administration, IITD and Prof. R Chattopadhyay, Dean–Planning Unit, IITD. Both of them encouraged the young participants by their remarks on pursuing a career in research and also shared their experiences from academic life. Winners under all the categories were felicitated during the closing ceremony.