Fiber and Textile Research in India

Indian textile industry is the second largest employer, next only to agriculture**,** and second largest foreign exchange earner, next only to information technology sector. Because of these factors, recently there has been widespread interest in diversification and research and development investments in India. The Government of India is considering non-commodity textiles, i.e., nonwovens and technical textiles as important contributors to the growth of the overall textile industry. Important schemes such as Technology Upgradation Fund that will benefit academia, research organizations and industry have been introduced. Recently, the Indian Government has supported the creation of four Centers of Excellence which will focus on: 1) Medical textiles; 2) Geotextiles; 3) Protective textiles; and 4) Agrotextiles. As the support for fiber and textile research is declining in industrialized countries, this will be interesting news for researchers and the industry in the rest of the world. In addition, the Government of India is in the final stage of formulating a Technology Mission for Technical Textiles which will be implemented for a five year period. This dedicated effort will lead to the creation of world class research centers and nurture top-notch researchers in the field of fiber science and textiles. More importantly, it creates new opportunities for the western world to interact with the Indian textile R&D base.

The availability of high quality scientific journals in our field such as the Journal of Engineered Fibers and Fabrics (JEFF) provides a much needed platform for linkages between India and the rest of the world. Already, scientists from India are contributing good quality papers to JEFF, and the journal is gaining good attention in the Indian subcontinent. As India and China are growing economies with greater emphasis on textile science and trade, JEFF is playing a significant support role to the world textile community by offering an insight on the latest research from Eastern Hemisphere.

This special edition is an eclectic mixture of six papers from four reputed institutions in India. These papers cover fiber physics, spinning, nonwovens and physical and functional properties of textile materials. Bhat et al., present useful results on the microwave heat-setting of polyester filament yarns. The non-contact microwave treatment can lead to cost and energy savings in the industry. Ramachandran and Loganathan analyze the migration phenomenon in carded compact yarns, as compact spinning of carded fibers is slowly penetration into the market place. This research is from Coimbatore in India, which is the center of the spinning industry and hence very appropriate for the authors to tackle a pertinent subject. Madhusoothanan and Debnath present an interesting experimental investigation on the effects of fiber cross-section and reinforcing material on the compressional characteristics of polyester needlepunched materials. They focus their attention on compressional resiliency as it has implications in upholstery and automotive applications. Das et al. from the Indian Institute of Technology, New Delhi focus on the functional property of textiles—moisture transport. As expected, hydrophilic materials in blends decrease the moisture transmission, which is a useful understanding for the design of performance wear clothing. In a similar vein, Sreenivasan and Sheela Raj of the Central Institute of Research on Cotton Technology tackle a complicated subject, i.e., comfort. A novel “Total Wear Comfort Index” has been derived which takes into account the tactile and transport characteristics of fabrics. Scientific investigations of the hand of fabrics have been carried out since the 1930s and it is pleasing to see researchers are coming-up with new ideas to tackle the nebulous subject even today. Patil and Nachane study the viscoelastic behavior of yarns focusing their attention on inverse creep, which has not been studied in detail by textile physicists. The study of inverse creep of yarns has some practical significance in weaving and hence a good understanding of this phenomenon is useful.

India’s textile industry is expected to grow around 8% per annum and special emphasis is being placed on the R&D and emerging areas such as technical textiles and nonwovens. Given the number of polytechnics, engineering colleges, national institutes that offer textiles and fashion courses, there will be no dearth to new research data from India which can be disseminated to the world through quality journals such as JEFF.

I welcome you all to ride with me as I begin to understand the science and technology in the papers presented in this issue.

Sincerely yours,

Seshadri Ramkumar, Ph.D., Guest Editor
Texas Tech University