

## Optical Science and Engineering in India

**Rajpal S. Sirohi**, MEMBER SPIE  
 Indian Institute of Technology  
 Physics Department  
 Applied Optics Laboratory  
 Madras 600 036 India

Research in optics in India can be traced to the period when Sir J. C. Bose did pioneering work in millimeter radio waves. He studied many properties of matter including double refraction in birefringent materials and strained dielectrics at high frequencies. Very intense activity in optics existed during the mid-1920s mostly due to the work of Sir C. V. Raman and several other distinguished scientists. Excellent contributions were made in crystal optics, vision optics, science of color, and optical metrology. Research activity in these fields continued at a steady pace until the mid-1950s when dedicated groups in the then current fields of optical metrology, image evaluation, and design and development of optical and optomechanical instruments were established at the National Physical Laboratory, New Delhi; Calcutta University; and the Instrument Research and Development Establishment, Dehra Dun. Also, a facility for the production of optical glasses was established at the Central Glass and Ceramic Institute, Jadhavpur. While these groups have since been considerably broadbased, new centers emerged where research in current areas of optics is pursued vigorously.

Academic programs leading to Master of Technology degrees in applied optics are offered by the Indian Institute of Technology (IIT), Delhi. Several universities offer PhD programs in optics.

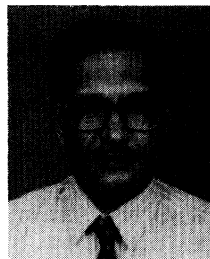
The Optical Society of India was established in 1965 and currently has 430 members. The society became affiliated with the International Commission for Optics (ICO) in 1990. The society plays an important role in the dissemination of optics knowledge through regular symposia and other activities.

This special section presents the current activities in optics in India to the world community. The job of a guest editor is difficult. He has to line up the authors, solicit reviewers, and process all the papers. An efficient secretary and a well-equipped office are assets: I had neither. Nevertheless, I sent out letters to 100 scientists requesting contributions for the special section. I was elated to receive 50 confirmations, and therefore hoped to present the whole spectrum of optics activity in India. I had to follow up with reminders, and found to my amazement and sorrow that the papers were not forthcoming from the confirmations. However, I began to receive papers from authors I never contacted. In all I received 35 papers; a few arrived too late to be included in this special

section. The reviewers were selected from OSA and SPIE membership directories and the manuscripts were dispatched to two reviewers for each paper. Some of the reviewers were quick, but some were away from their offices and the reviews were delayed. Some never responded even after repeated requests, and hence alternate reviewers were sought out. After the review process, a few papers were accepted without any revision, some required revision, and only a few revised manuscripts were referred back to the reviewers for further opinion. Only one paper was rejected.

In all, the special section contains 25 papers covering a wide spectrum including fiber optics, holography, laser physics, laser technology, lens design, moiré, nonlinear optics, optical data processing, optical instrumentation, optical metrology, photoacoustics, and quantum optics.

I would like to express my thanks to the contributors and reviewers without whose involvement this special section would not exist. I also acknowledge the assistance and help rendered by my colleague Dr. N. Krishna Mohan in processing the manuscripts. The help received from the editorial staff of *Optical Engineering* is gratefully acknowledged. With these remarks, I have great pleasure in presenting this special section on Optical Science and Engineering in India to the world optics community, and I hope that it will receive appreciation for its contents and quality.



**Rajpal S. Sirohi** received his MS degree in 1964 from Agra University, and his diploma in applied optics and PhD in physics from the Indian Institute of Technology, Delhi, in 1965 and 1970, respectively. He has been a professor in the Department of Physics at the Indian Institute of Technology, Madras, since 1979. His areas of research are optical instrumentation, holography, and speckle phenomenon for measurements. He has more than 170 papers published in various journals and has authored/co-authored/edited eight books—the latest being *Speckle Metrology* published by Marcel Dekker. He is a fellow of OSA and SPIE and a life member of several other scientific societies. He is currently the president of the executive council of the Optical Society of India and is on the editorial board of the *Journal of Optics (India)* and on the international advisory board of the *Journal of Modern Optics*.