Optical Engineering in Hungary

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We are pleased to have this opportunity to present information about recent achievements in optical sciences and optical engineering in Hungary to the readers of *Optical Engineering.*

These results were achieved in Hungary—a fact that is worth noting because a great number of the Hungarian scientists of this century have found better circumstances for their development abroad. It is enough to mention John Neumann, Eugene Wigner, Leo Szilard, Edward Teller, and one of the nobility of the optical sciences, the founder of holography, Dennis Gabor. But even these authors had knowledge "born" in Hungary that helped them create something enduring for the entire world.

This knowledge and the affinity toward the natural sciences and engineering are rooted in the past. Good examples are the mathematics of Farkas and Janos Bolyai, the mechanisms of Farkas Kempelen, which amazed the European courts, and the optical calculations that revolutionized the photography of Jozsef Petzval, one of the pioneers of optical engineering.

This collection of papers gives an overview of the optical research and development taking place at Hungarian universities and research institutes. Our aim here is to awaken new ideas and encourage readers to develop new alliances.

Optical teams in Hungary exist primarily as academic groups at research institutes, the largest one being the Central Research Institute of Physics (CRIP). Teams also exist at universities such as József Attila University (JATE, Szeged), the Technical University Budapest, and Janus Pannonius University (Pécs).

We have attempted to provide a cross section of the current activity in both pure and applied research in optics in Hungary. Twenty-one papers are included in this special issue covering a wide field of research and development. We have grouped the papers principally by topic and the aim of each piece of work. Nevertheless, the placement of some papers may seem arbitrary.

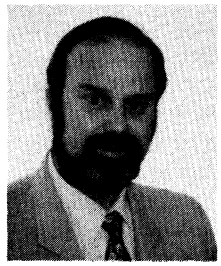
We start off with papers on laser physics. Laser physics research has had a remarkable past in Hungary: the first Hungarian He-Ne laser was built at CRIP in 1963. From this early date many fruitful years of research and development followed at different institutions in this field.

Papers covering the interaction of light and matter are next. The study of the nonlinear photoelectric effects represents a traditional area of research in Hungary: the papers on ultrashort pulse propagation give a segment of the activity in modern optics at JATE.

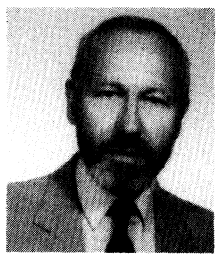
The third group consists of noteworthy results in the areas of development in which Hungarian scientists have traditionally played a leading role—lens design (Petzval) and holography (Gabor).

Currently, significant activity is taking place in Hungary in the area of optical measurement engineering. This fourth group of papers surveys the development of measurement techniques, the design and construction of components and units of measurement systems, measurement system applications, and the theory of the methods and techniques that have been developed and applied. Finally, we include a paper that deals with the problem of optical data transmission.

We do hope that everyone enjoys the papers we have selected for presentation here, and we thank the authors for their valuable efforts. We would also like to thank the reviewers for their diligence and kind help.



Tivadar Lippényi received a degree in mechanical engineering from the Technical University Budapest in 1973 and a PhD in optics and precision mechanics in 1986. From 1973 to 1975 he was a research assistant at the Central Research Institute for Physics, working mainly in optomechanical research and the development of lasers and their application. As a research associate, he took part in several projects on the development of rangefinders and direction finders, solid state laser manufacturing, FIR laser development, etc. From 1979 to 1980, as a team manager, he developed the first Hungarian surgical carbon dioxide laser for otolaryngology. In 1984 he joined Tungsram Company, where he was the team manager of lidar development. In 1987, Lippényi organized an affiliate, Tungsram Laser Technology, and lead the company until 1991. He also organized the Hungarian Chapter of SPIE in the form of an independent society called HUNGOPTIKA, of which he serves as president.



Zoltán Füzessy has worked in holographic interferometry since 1973. He received the degrees of candidate of physical science in 1983 and doctor of technical science in 1989 from the Hungarian Academy of Science. He is the author of more than 70 papers and coauthor of a textbook, *Application of Metrological Laser Methods in Machines and Systems,* published in 1991. Currently he is a full professor in the Department of Physics at the Technical University Budapest and is responsible for R&D in coherent optical metrology. Professor Füzessy played a leading role in the development of difference holographic interferometry—a novel technique for comparative measurement.