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Optics in Poland

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I am pleased to present Poland's achievements in optics in this special section of *Optical Engineering*, thanks to the good will of SPIE and the encouragement of Dr. Brian Thompson. Considering the number of Polish SPIE members and the amount of their activity, we believe that we have attained a significant presence in the optical European community. Now with this special, a country located in a far corner of Europe can attract the attention of the worldwide optics community.

Before beginning this editorial I reflected on its theme. I could present an historical perspective of Poland's research in optics, beginning with the thirteenth century and the work by Witelo, *Perspectiva*, and including a review of works by such famous Polish researchers as W. A. Rubinowicz, M. Wolfke, and A. Jabłoński, among others. However, *Optical Engineering* publishes "...papers reporting on research and development of new optical technology...." Therefore, this theme might not be of great interest to *OE* readers.

Another approach I could take for this editorial could be to provide a systematic description of Poland's most important centers for optical research. However, that would require a full paper since numerous centers exist. A good example of one such paper is the report about the Central Optical Laboratory in Warsaw (now the Institute of Applied Optics) published in *Optical Engineering* in July 1988. Or an even better method for the presentation of the activities of each research institution is domestic and international conferences. For example, our presence at SPIE's 1991 Annual Meeting in San Diego, where the Polish optics community presented 15 papers, several tutorials, and for the first time took part in the exhibition.

I believe that the purpose of this special section is to present a snapshot of the current research being performed in Poland along with a look at the future of optics research. Therefore, a better introduction to this section would be to present a look at the field of optics within Poland's changing economy with a short take at how we came to be.

Although the economic state of communist governments is rather poor, in the years following World War II, Poland saw intensive efforts to form groups of educated people, especially in the technical professions. Certainly, competition with capitalistic countries was one of the main reasons, but such activity was positive for progress in optics research as well as in other fields. Paradoxically, optics in Poland owes much to the Korean War (1950–1953). Because of this war the Polish Optical Works (PZO), the most important producer of optical instruments in Poland, was developed. In addition, education in

optical engineering began at Warsaw University of Technology (WUT) in the Precision Mechanics Department, which continues today. Other departments now also provide education in physical optics such as the Technical Physics and Applied Mathematics departments of WUT, and in optoelectronics and laser techniques such as the Electronics Department of WUT and the Military Academy of Technology in Warsaw.

Optical groups in Poland are concentrated mainly in two cities: Warsaw and Wrocław. Both cities have an

academic character. Besides the academic groups mentioned previously, the Institute of Applied Optics, two optical factories (Polish Optical Works and the Industrial Center for Optics established recently for highly advanced optics and optoelectronics), and many other small private companies, especially for researching laser techniques, are located in Warsaw. The optical tradition of the Institute of Physics at Wrocław Technical University originated from an optical group in Lwów, a city that now is in the Ukraine. Since 1971 the institute has published the periodical *Optica Applicata* (in English). This unique international Polish journal is dedicated to modern optical problems.

The future of optics research in Poland can be judged in various ways. There is no doubt that we have the doctors and professors to advance the field of optics. In Poland, research in optics has deep traditions; we have contacts throughout the world, including in the institutes of various republics of the Soviet Union. The biggest problem facing us now is our eco-



Part of the SPIE Polish Chapter delegation at SPIE's Annual Meeting in San Diego, July 1991. From left to right: K. Chałasińska-Macukow, M. Pluta, M. Daszkiewicz, Z. Jaroszewicz, M. Matczak, and K. Patorski.

conomic crisis. We are returning to capitalism. Because we are only two years into this switchover, it is too early to formulate conclusions. The state-owned industry is being dispersed. Dynamic new private firms have been created that have ties with foreign companies. It is exciting to observe such change in so short a time. Which changes will come faster? Will it be the decline of the state industry or the development of private enterprises? After all, the balance of both determines the position of optics in Poland. I am an optimist. Starting off with a disadvantage, the progress to come ought to compensate for all losses. Poland's researchers are ready.

This special issue confirms, I hope, my opinion. It represents a cross section of current applied research taking place in Poland in the field of optics and optoelectronics. I found it an excellent opportunity to promote the best Polish optics and sincerely hope that it will promote future cooperation between Poland and other countries in the worldwide optics community.



M. Kujawińska and K. Patorski with their exhibits at SPIE's Annual Meeting in San Diego, July 1991.



Romuald Józwicki received MSc and PhD degrees in optical engineering (OE) in 1956 and 1964, respectively, and a Dr. hab. degree in OE in 1977, all at the Precision Mechanics Department (PMD) of Warsaw University of Technology. From 1956 to 1958 he was a member of the designing staff at the Polish Optical Works, Warsaw. Since 1958 he has been with the Optical Engineering Group (OEG) of the Warsaw University of Technology. He was the head of the OEG from 1974 to 1986 and from 1986 to 1990 was the dean of PMD. Józwicki is the author of 4 textbooks and approximately 40 scientific papers, and holds 10 patents. He is a member of the editorial board of *Optica Applicata*. His current research interests are in the analysis of the aberration influence of an interferometric optical system on the measurement error using the wave optics approach.