

PREFACE

Dear readers, the Institute of Atmospheric Optics, Siberian Branch of the Russian Academy of Sciences offers you one more topical issue on application of adaptive optical systems in the atmosphere.

First, it should be noted that in recent years the world optical society has made much progress in developing adaptive optics and solving problems on its application in the present optical systems. The Russian scientists continue their research work in this area in spite of serious economical problems in the country.

In this year many symposia and conferences were devoted to the aforementioned subject.

First of all this is the International conference "Smart Structures and Materials" (February 1–4, 1993, Albuquerque, New Mexico, USA). This conference was organized under participation of SPIE, International Society of Optical Engineering. The Organizing Committee was headed by Mark Ealey from Litton Itek Optical System Corp. The Organizing Committee consisted of the representatives of Jet Propulsion Lab., Lawrence Livermore Lab., Air Force Phillips Lab., Lincoln Lab./MIT, and European Southern Observatory (FRG).

Different problems of adaptive optics application in astronomy when constructing adaptive telescopes were widely discussed at this conference (W. Jiang, China; J.–P. Caffara, France, C. Shelton and R. Angel, USA; F. Merkle, FRG; and, V. Lukin, Russia). Dr. D. Greenwood from Lincoln Laboratory of Massachusetts Technological Institute presented the plenary paper "History of Development of Adaptive Optics in Lincoln".

On April 12–16, 1993 the International conference "Aerospace Science and Sensing" took place in Orlando (Florida, USA). There were several symposia, within the framework of this conference, on sounding the Earth from outer space, space telescope construction, different sensors and meters as well as propagation of laser radiation in the atmosphere. One of the Sections was organized to discuss the problems on application of adaptive optics in the case of forming laser beams and optical images.

The Summer School of the NATO countries "Adaptive Optics for Astronomy" held from June 29 to July 9, 1993 in France on Corsica became an important event. The representatives from 18 countries listened to the lectures of the leading scientists from USA, France, England, Canada, Russia, and Israel. There were also scientific seminars there. Some papers from these seminars will be published in our journal at the beginning of 1994. At last, the most interesting meeting devoted to adaptive optics was the 16th International Commission on Optics. The conference "Active and Adaptive Optics" was held in Munich, August 1–4, 1993 under the auspices of this Commission. The chairman Dr. Fritz Merkle from the European Southern Observatory contributed greatly to this conference. More than 80 reports and communications were incorporated into the Program of the conference. The achievements of optical specialists and astronomers on the development and application of adaptive optics are impressive. The leaders in this area are USA, France, and Germany. The scientific programs from Italy, China, and England are also of great interest.

Undoubtedly the Russian science experiences now hard times. Nonetheless the Institute of Atmospheric Optics, Siberian Branch of the Russian Academy of sciences held the 12th International Symposium on Propagation of Laser Radiation in the Atmosphere and Water Media (22–24 June, Tomsk) at a high scientific level. One of Sections was devoted to adaptive optics. The majority of the papers of which this issue is composed were discussed at the meetings of this Section.

The recurrent conference "Laser Optics" held in St. Petersburg in June this year had attracted much attention of many scientists from Russia and many other countries of the former USSR as well as from abroad. The scientists from the S.I. Vavilov State Optical Institute (St. Petersburg) represented many interesting papers on development of individual elements of adaptive optics.

So, our dear readers, we offer you our current topical issue. The authors of the papers and the editorial staff of the Journal believe that the adaptive optics in Russia will continue its development and the 12th issue of the journal "Atmospheric and Oceanic Optics" will also be devoted to the problems of adaptive optics in 1994.

Prof. V.P. Lukin, Editor