Preface

This issue of *Atmospheric and Oceanic Optics* publishes the papers summarizing the results of the studies carried out within the framework of the School "Optical Molecular Spectroscopy and Radiative Processes in the Atmosphere" (Grant No. 373.2003.5 "Scientific Schools") and supported (methodically, financially, etc.) by the School.

The initial material of atmospheric spectroscopy is the qualitative and quantitative information about the spectra of atmospheric gases, which is just the key subject of this topical issue — it is considered in almost 50% of the papers. These papers deal with analysis of both the structure (methods, computational algorithms, etc.) of spectra of isolated molecules and fine details of the line profiles caused by intermolecular interaction. About 30% of papers discuss experimental methods and the corresponding results.

The primary tasks of the atmospheric spectroscopy itself are, basically, the calculation of the spectrally integral characteristics with due regard, in the general case, for the inhomogeneities of a medium, overlapping of the absorption bands of different gases, and the presence of the corresponding source functions. These subjects are considered in several papers of this issue, which concern the search for the most rational ways of overcoming the difficulties of not only pure technical character that arise while completing this task.

Postgraduate students and young scientists constitute a significant part among the authors of the papers published in this issue.

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