

**ADVANCES IN
LASER SCIENCE-I**

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ADVANCES IN LASER SCIENCE-I

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LASER SCIENCE CONFERENCE

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PREFACE

Laser Science is an emerging technical area with a strong interdisciplinary flavor. It is based on a wide range of traditional interest areas, including (but undoubtedly not limited to) atomic and molecular physics, chemical physics, condensed matter physics, optical physics and engineering, plasma physics, physical chemistry, photochemistry, materials science and engineering, electrical engineering, gaseous electronics, quantum electronics, and electro-optics. At the core of laser science are the mechanisms of the lasers themselves and the interaction of the laser photons with matter (spectroscopy and photoprocesses). Surrounding this core is the wide spectrum of scientific applications of lasers, not only in the disciplines mentioned above, but also in virtually every other area of science and technology. The primary purpose of the International Laser Science Conference (ILS) is to survey annually both the laser and spectroscopy/photoprocesses core areas and a wide variety of selected scientific applications of lasers. Secondary goals include improved cross fertilization among the areas listed above and improved international scientific communication.

The first such ILS Conference (ILS—I) was held at the University of Texas at Dallas Conference Center, November 18-22, 1985. The conference was a Topical Conference of the American Physical Society, and was designated the Annual Meeting of the newly formed Topical Group on Laser Science. Carl B. Collins (University of Texas at Dallas) was Conference Chair, and also headed the local organizing efforts, with exemplary secretarial assistance by Lynda Horne and her colleagues. The Center itself provided an outstanding environment for the conference with both ready access to the meeting rooms and abundant space for informal discussion. Richard C. Powell (Oklahoma State University) was Conference Co-Chair, contributing administrative expertise, especially with financial arrangements. Rolf Gross (Aerospace Corporation) was International Co-Chair, a post designed to aid international participation in the conference. His diligent efforts provided a solid international base for this first meeting. The program was assembled by us, with generous advice from the Program Committee and the tireless efforts of those members of the Program Committee who agreed to organize sessions. Receipt, compilation, correction, and acknowledgement of abstracts and assembly of the Program (printed in the Bulletin of the American Physical Society) was done by the expert and dedicated secretarial staff at the University of Iowa Laser Facility, headed by Lynn Borders, the ILS—II Administrative Assistant. Generous support for ILS—I was provided by the Air Force Office of Scientific Research, the Army Research Office, the National Science Foundation, the University of Texas at Dallas, and the University of Iowa.

The conference consisted of five parallel sessions over five days and included four outstanding Plenary Talks. Poster sessions (including many postdeadline papers), which allowed for greater individual discussion, were presented late Tuesday. Session organizers were encouraged to make thoughtful development of session topics a prime consideration. Contributed talks were included only when they meshed well with invited and overview talks.

The speakers at the ILS Conference were given instructions for preparation of the brief camera-ready manuscripts at the meeting. They did, with few exceptions, an outstanding job (as they had in their oral and poster presentations), thereby reducing the editorial burden and also the reviewing burden, borne for the most part by the Session Organizers (listed in the Table of Contents) and the International Co-Chair. The papers here are organized by subject, rather than chronologically, with the poster papers in some cases being rather arbitrarily assigned. Final responsibility for the physical assembly of the 258 papers in this volume went to Lynn Borders, whom we thank most sincerely for an exceedingly impressive and heroic job.

William C. Stwalley
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Iowa City
Program Chair
International Laser Science Conference—I

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