



NEWSLETTER

Published by the American Society for Photobiology /

1340 Old Chain Bridge Road, Suite 300 / McLean, Virginia 22101 / (703) 790-1745

Editor: Thomas P. Coohill, Depts. of Biology & Physics
Western Kentucky University, Bowling Green, KY 42101 tel:(502)745-3697

No. 76 February 1984

ASP - Newsletter

Radiation International - Charter issue this month

Some excerpts from index:

Feature Article - "Sunburn"

Sub-Feature Articles - "Sunburn: Well Done (too much)" The Sun can Ravage the Human Skin by Dr. Albert M. Kligman.

"Sunburn: Rare (not enough)" The healthful characteristics of full-spectrum ultraviolet/light radiation by Dr. John N. Ott.

Interest Articles

"PHOTOBIOLOGY -- AN INTERVIEW WITH ASP" AN INTERVIEW WITH PRESIDENT JOHN JAGGER, HEAD OF ONE OF THE FASTEST-GROWING SOCIETIES IN THE WORLD: THE AMERICAN SOCIETY FOR PHOTOBIOLOGY.

Plus

"Synchrotron: The Mysterious Radiation Machine"

"The Feds & Radiation Regulation"

Timetable - A calendar of conferences, seminars and meetings in the radiation field

Tutorial - Strictly about radiation education

Classified Indeed - Classified ads

First Issue Circulation - 20,000

Further Information - Dr. George P. Sakalosky, Editor in chief, Assoc. publisher, Radiation International, 21 Brookside Village, Box 287, Gatlinburg, TN 37738

As mentioned in the January Newsletter, Radiation International is not a technical journal. It is aimed at a more general professional reader who needs to be informed about radiation.

Announcing A Special Issue Of IEEE Journal Of Quantum Electronics on Lasers in Biology and Medicine

Laser technology has opened a new era in biology and promises to play an important role in medicine. In biology, the techniques of laser spectroscopy have probed the structure of biological molecules while time-resolved spectroscopy has elucidated the dynamics of biological processes. In medicine, the laser is gradually being accepted as a tool for diagnosis and treatment. It is fast becoming the treatment of choice for some different cancers. Most exciting is the photoradiation method which combines the laser with light sensitive dyes for cancer therapy. In ophthalmology, lasers have been widely adopted for several non-invasive surgical procedures. Within a decade lasers may be used routinely on glaucoma and cataracts. Lasers are being used by throat surgeons to remove growth from the vocal cords. In other surgical fields, lasers can be used to reach inaccessible areas of the body and to perform delicate and precise operations on the brain, spinal cord and heart.

Wider use of lasers, however, is hindered by a communication gap between the scientist, who develop lasers and those who apply them to biomedical research. In addition lack of basic understanding of the interactions of laser radiation with tissues constitutes an additional impediment to a wide acceptance of lasers in medicine. A great deal of information on the photophysics and photochemistry of the laser-tissue interactions needs to be addressed. What are the mechanisms of cutting and healing? What are the optimum conditions in terms of laser wavelength, energy, pulse duration and repetition rate? Does one need a heat or plasma cutting laser beam? Would a picosecond laser pulse be best for certain applications? Is there a synergistic effect when laser treatment is used with another procedure such as chemotherapy? What is the physical basis of photoradiotherapy and how the dyes can be optimized? What are the long term effects of laser radiation? What are the hazards?

The goals of the present issue are to bring scientists from all sides together so that they may understand better the scientific and technical problems they face.

In announcing a special issue devoted to lasers in biology and medicine, the IEEE Journal of Quantum Electronics affirms its commitment to providing a forum for this increasingly significant field. Papers on all aspects of laser uses in biology and medicine are invited. Original contributions may be submitted as articles or letters. These will follow the normal procedures of the review process.

Topics of particular interest include laser spectroscopy using steady state and time resolved methods to investigate biologically important molecules such as heme proteins, visual pigments, DNA, etc; as well as the dyes used in photoradiotherapy. Other topics of interest include all areas of medicine where lasers are used for diagnosis and treatment: photoradiotherapy, endoscopy, oncology, dermatology, ophthalmology, cardiovascular, gastroenterology, surgery, dentistry, etc. as well as studies (in vitro or in vivo) of the interaction of lasers with tissues. Articles that treat development of specific lasers and techniques for biomedical research are also of great interest.

The deadline for submission of papers is April 30, 1984 and publication is planned for December 1984. Contributors are encouraged to submit a list of four possible reviewers.

Contributions consisting of the original manuscript and two copies should be submitted to the guest editors.

Guest Editors - IEEE

Professor Robert R. Alfano
Professor Apostolos G. Doukas
Institute for Ultrafast Spectroscopy and Lasers
Science Building Room J419
Departments of Physics & Electrical Engineering
The City College of New York
New York, N.Y. 10031
(212) 690-6935

From Photochemistry and Photobiology

The new members of the Editorial Board for 1984 are listed below:

Dr. James C. Cleaver (succeeding Dr. Lytle)
Laboratory of Radiobiology
University of California
San Francisco, California 94142

Dr. David A. Lightner (succeeding Dr. Schaap)
Department of Chemistry
University of Nevada Reno
Reno, Nevada 89557-0020

An additional member in photosynthesis will be announced later in the year.

From the Education Committee

The ASP would like to encourage publication of texts, monographs of general interest to the Society, and resource materials for teaching, under the aegis of the Society. The ASP is particularly interested in sponsoring those publications which would be used for educational purposes. Limited funding from the Society would be available on the competitive basis. Proposals should be submitted to the chairperson of the ASP Education Committee:

Dr. Barbara A. Zilinskas
Department of Biochemistry and Microbiology
Rutgers University - Cook College
Lipman Hall
New Brunswick, NJ 08903

Congressional Fellow - A reminder

The January Newsletter contained information regarding the ASP/Biophysical Society Congressional Fellow program for 1984-85. If interested contact: Dr. A. Schechter, Bldg. 10, Rm 9N-307, NIH, Bethesda, MD 20014, (301) 496-5408.

Books

From Plenum 233 Spring St. NY, NY 10013:

Biological Effects and Dosimetry of Nonionizing Radiation Radiofrequency and Microwave Energies

Edited by Martino Grandolfo, Superior Institute of Health, Rome Italy, Sol M. Michaelson, University of Rochester Medical Center, and Alessandro Rindi, National Institute of Nuclear Physics, Italy. Responding to the increased usage of devices that emit non-ionizing radiant energy, leading international experts explore the effects of this radiation upon biological systems. The volume reviews the fundamentals of the physics and biology connected with the interaction of low-energy electromagnetic radiation with living matter, and updates the techniques developed for the dosimetry of these energies. It also provides a critical analysis of the biological effects of radiofrequency and microwave radiation in relation to the establishment of safety standards. Proceedings of a NATO Advanced Study Institute on Advances in Biological Effects and Dosimetry of Low Energy Electromagnetic Fields held in Erice, Trapani, Sicily.

682 pages, illus., 1983 ISBN 41017-6 \$79.50 (\$95.40 outside US & Canada)

Photochemical and Photobiological Reviews

Volume 7

Contents: Contents of earlier volumes. Physiological effects of near-ultraviolet radiation on bacteria, J. Jagger. The electronic spectroscopy of photoreceptors (other than rhodopsin). Pill-Soon Song. Photodynamic agents as tools for cell biology, T. Ito. Photoacoustic spectroscopy and related techniques applied to biological materials, T.A. Moore. Photobiology and radiobiology of Micrococcus (deinococcus) radiodurans, B.B. Moseley. Cherenkov radiation: its properties, occurrence and uses, J.V. Jelley. Neurospora crassa: a unique system for studying circadian rhythms, J.F. Feldman and J.C. Dunlap. Index.

368 pages + index, illus., 1983 ISBN 41289-6 \$59.50 (\$71.40 outside US & Canada)

Applications of Infrared, Raman, and Resonance Raman Spectroscopy in Biochemistry

By Frank S. Parker, New York Medical College

This book extends and expands Dr. Parker's highly successful Applications of Infrared Spectroscopy in Biochemistry, Biology, and Medicine (Plenum 1971) to include reviews of the most recent applications of infrared and Raman and resonance Raman spectroscopy. Dr. Parker has selected applications that will be of interest to a wide variety of people, including advanced undergraduate chemistry and biology students, graduate students and research workers, and spectroscopists.

511 pages + index, 1983 ISBN 41206-3 \$65.00 (\$78.00 outside US & Canada)

The Application of Laser Light Scattering to the Study of Biological Motion

Edited by J.C. Earnshaw and M.W. Steer, The Queen's University of Belfast, Northern Ireland

This collaborative work of international physicists and biologists provides a detailed understanding of each of the major laser light scattering (LLS) systems that have been successfully developed to study particular types of biological problems and a range of fundamental problems whose present status could be advanced by the application of LLS techniques. This volume is a standard reference source for these physical techniques and biological problems, which were previously available only as scattered references in the physical, biophysical, and biological literature. Proceedings of a NATO Advanced Study Institute on the Application of Laser Light Scattering to the Study of Biological Motion held in Maratea, Italy.

approx. 675 pages, illus., 1983 ISBN 41268-3 \$89.50 (\$107.40 outside US & Canada)

The Role of Solar Ultraviolet Radiation in Marine Ecosystems

Edited by John Calkins, University of Kentucky

A growing awareness of the capacity of modern technology to change the composition of the Earth's protective ozone layer has led scientists to take a hard look at the effects of solar ultraviolet radiation. This monograph provides both an outline of methodology and the specific details needed to evaluate the role of solar ultraviolet radiation in marine ecosystems. Specialists from fields including atmospheric chemistry, biological radiation dosimetry, UV optical oceanography, aquatic photochemistry, and UV molecular photobiology share information on current concepts of the biological actions of solar ultraviolet radiation, specific studies on responses of plants and animals, ecological and evolutionary actions of the ultraviolet components of sunlight, and the computation of the level of ultraviolet radiation reaching marine organisms. Proceedings of a NATO conference on the Role of Solar Ultraviolet Radiation in Marine Ecosystems held in Copenhagen, Denmark.

740 pages, illus., 1982 ISBN 40909-7 \$79.50 (\$95.40 outside US & Canada)

Trends in Photobiology

Edited by C. Helene, Museum National d'Histoire Naturelle, Paris, France, and Centre de Biophysique Moleculaire, CNRS, Orleans, France, M. Charlier, Centre de Biophysique Moleculaire, CNRS, Orleans, France, Th. Montenay-Garestier, Museum National d'Histoire Naturelle, Paris, France, and G. Laustriat, Universite Louis Pasteur, Strasbourg, France.

An up-to-date view of this field, highlighting areas of investigation still in the early stages of development. Divided into five sections, the work first considers photophysics and photochemistry of biological molecules. Specific areas addressed include the dynamics of heme proteins and applications of bioluminescence. Next, mutagenesis, carcinogenesis, and DNA repair are examined in detail. The third and fourth sections explore recent advances in photomedicine and photophysiology. Finally, the contributors look at photosynthesis and bioconversion of solar energy, including laser studies of primary processes in photosynthesis and bioconversion at the ecosystem level.

Proceedings of the Eighth International Congress on Photobiology and of the Colloque International du CNRS on "Les Effets Biologiques et la Bioconversion du Rayonnement Solaire" held in Strasbourg, France.

688 pages, illus., 1982 ISBN 40644-6 \$35.00 (\$42.00 outside US & Canada)

Brocklehurst, J.R., M.T. Flanagan: Multilayer Models of Photosynthetic Membranes. Final Report. Luxembourg: Commission of the European Communities 1982. 129 S. EUR 7688

Duysens, L.N.M., R. van Grondelle, M.P.J. Pulles: Study of Primary and Associated Reactions in Photosynthesis.

Luxembourg: Commission of the European Communities 1982. 151 S. EUR 7793

Evans, M.C.W., P. Heathcote, J. Nugent: Investigation of the Properties of the Primary Electron Acceptor Complex of Photosystem I.

Luxembourg: Commission of the European Communities 1982. 26, 18 S. EUR 7683

AMERICAN SOCIETY FOR PHOTOBIOLOGY

1340 Old Chain Bridge Road, Suite 300
McLean, Virginia 22101

Non-Profit Org.
U S POSTAGE
PAID
Bethesda, Md
Permit No. 45126