BOOK REVIEW

Laser Spectroscopy V. by A. R. W. Mckellar, T.Oka, B. P. Stoicheff, Published by Springer Verlag, Post fach-1051 60, Haberstra 13 C 7, pp. 495, price: $ 32.60.

The present volume of Springer series in optical sciences presents proceedings of the Fifth International Conference on Laser Spectroscopy (VICOLAS) held during June 29-July 3, 1981 at Jasper Park Lodge, Alberta, Canada. Two hundred and thirty scientists from 19 countries participated in the conference and presented papers on fundamental applications of laser spectroscopy, non-linear processes, Rydberg states and a wide range of modern developments in laser sources, surface and solid state, cooling, trapping and control of ions, atoms and molecules. Topics like optical bistability, multi-photon excitation and dissociation, though not listed separately are discussed in the conference and experiments dealing with them appear in related areas. The volume contains several important contributions out of which only a few are briefly mentioned in this review.

The introductory paper on 'Perspectives in Laser Spectroscopy' which is typical of these series is by H. Walther who was the key figure responsible for the organisation of the fourth International Conference on Laser Spectroscopy. The review highlights the developments in high resolution spectroscopy and the application of laser spectroscopy to fundamental problems in physics. It is perhaps one of the best overviews on the subject.

The papers on fundamental applications of laser spectroscopy include those on precision spectroscopy and laser frequency control using FM side band heterodyne techniques which maximise the signal-to-noise ratio and obtain highly symmetrical resonance profiles. High precision laser interferometry for a detection of gravitational radiation and Lamb shift studies. The paper of Arthur Schawlow *et al* from Standford University on 'laser level labelling' is a trend setter in the study of complicated molecular spectra. Similarly the paper on Resonance ionization spectroscopy (RIS) counting of noble gas atoms from G. S. Hirst *et al* of the Oak Ridge National Laboratory (ORNL) shows the potential of the one atom detection techniques. The part on double resonances contains very interesting papers dealing with optical-optical, optical-microwave, infrared (IR) microwave, optical-radiofrequency (RF) and (IR-RF) double resonance phenomena. Papers on non-linear and Collision-induced phenomena are grouped into two separate parts. N. Bloembergen of Harvard University discusses the experimental observation of collision induced coherence in Four Wave Light Mixing, using Sodium-He system. In another paper on 'Laser optical pumping in atomic vapours with velocity changing collision', M. S. Feld *et al* of Massachusetts Institute of Technology (MIT) demonstrate the efficiency of the method to produce polarised atomic vapours, which is important in fundamental studies in nuclear and atomic physics. A new method of obtaining Doppler free saturation spectra is described by the Stanford group in their paper on 'Polarization intermodulated excitation (POLINEX) spectroscopy of excited atoms'.

The 'dressed atom' approach in dealing with the collisional effects in Resonance flourescence by Cohen-Tannoudji *et al* makes an interesting reading. Papers dealing in CARS, and CSRS and other stimulated Raman scatterings are grouped together.

Paper dealing with Laser Spectroscopy of unstable species can be found in section VII which has a very interesting paper from T.Oka on the infrared spectrum of H_3+ which is the first infrared observation of its kind. The importance of the discovery of the IR Spectrum of H_3 is evidenced by the intensive search for its electronic spectrum as well as the attempts to discover the same in interstellar space (Kitt Peak National Laboratory). Further parts of the book list papers on 'Surface and Solid State' and progress in new Laser Sources. Most of the papers are interesting. The paper from Bell Laboratories by C. K. N. Patel and collaborators on the spectroscopy of very weakly absorbing condensed media is of far reaching importance. So also is the paper on 'Investigation of molecule surface' interaction by laser induced flourescence by Walther *et al* from Max Planck Institute, West Germany.

The panel discussion on Rydberg State Spectroscopy dealt with a wide range of interesting and important topics like Resonant Collisions, Collision Effects with high Rydberg state atoms, Rydberg Superradiance and Rydberg-Rydberg interactions.

In conclusion, the volume gives an excellent preview of the exciting developments taking place in Laser Spectroscopy and will be an invaluable addition to workers in Laser Spectroscopy.

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Annual Review of Public Health–by Lester Breslow, Vol. 4, 1983, Published by Annual Reviews Inc. Palo Alto, California 94306, USA pp. 424, Price: $ 27.00 U.S.A. Elsewhere $ 30.00.

As in the past, the coverage of topics in this volume is sufficiently wide and serves useful reference and reading material both for the clinicians and public health workers. The volume presents fourteen review articles and a special section devoted to 'Recent events in Biological Monitoring'. The reviews are critical and thought provoking and are of topical interest.

Design and analysis methods for longitudinal research is written for the health scientist who is not a statistician but has some familiarity with the 'Analysis of Variance'; presenting newer techniques in statistical analysis and critical issues associated with clinical trials, the reviewer opines that investigations in health sciences will continue to be of a multivariant nature.

Societal perceptions of health care as a human right versus health care as a economic good, oscillate with changing economic and political conditions, never reaching consensus at either extreme. Present evidence linking social and special conditions to health and disease appears to have been ignored in many current health, housing and city planning policies. Besides these facets, reviews on social hygiene cover interrelationship between land use planning and environmental health hazards; current state of planning practice for hazard mitigation in USA and effects of psycho-social experience of migration on health status.

'Self care in health' synthesises the modest understanding we have of self care, recognising the theoretical and methodological limits of available data and identifies productive directions for research and public health policies and programs. Correcting potentially distorted mechanisms of blood pressure control by non pharmacological modalities appears to be an extension of the 'Self-help concept'. De institutionalization of the mentally ill appears to have had a positive influence on the health and welfare of patients; abortion is a public health issue surrounded by years of controversy. Because of ethical issues involving the embryo, the beginning of human life, the right of a woman to control her own body and the role that unplanned pregnancy and childbirth has in determining the quality of life, abortion is now and will likely to remain a controversial issue; These are conclusions drawn after a critical analysis of the subject matter presented in the reviews.

Schistosomiasis control is discussed with primary emphasis on chemotherapy linked with incorporation of preventive measures into the design of economic development projects. The sources, concentrations and health risks associated with indoor pollutants and the environmental adverse effect in consumers is the topic of a review. The literature regarding the health related beliefs and behaviour of children, child initiated care, actions for health and scenario for the third era add significantly to the interest in the study of health care of children.

The volume ends with a special section on 'some recent events in biological monitoring'. These reports deal with specialised techniques and approaches, based on recent developments in basic science. The rationale, utility, area of application and limitations of these approaches are discussed. The topics include the metals cadmium and mercury, some persistent pesticides, use of breath analysis for the sampling of foreign chemicals, the issue of genotoxicity and application of cytogenetic methods for biological monitoring.

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Edited and Published by Prof. M. R. A. Rao, Current Science Association, Bangalore-560 080.
Photoset and Printed at Sri Sudhindra Offset Process, Bangalore-560 003, India.