
BOOK REVIEWS

Soil Biochemistry (Vol. 5) Edited by E.A. Paul and J. N. Ladd (Marcel Dekker Inc. 270, Madison Avenue, New York 10016, U.S.A.), 1981, pp. 480.

In the previous four volumes published already, organic constituents of soil with particular reference to humic matter have been reviewed. In the present volume (i.e. Vol. 5), topics of applied nature deserving immediate attention are reviewed.

With the supply of fossil fuels becoming uncertain and costly, efficient use of agricultural wastes as plant nutrient sources, minimisation of losses of nitrogen supplied through urea and the process of denitrification have been aptly covered under the chapters of 'Turnover of naturally occurring resistant organic compounds in soil and control of urea transformations in soils'.

Another aspect gaining prominence is the substitution of fossil fuel-based fertilizers through biological nitrogen fixation and microbial biomass production for generation of energy. This has been very well dealt with. The material on biomass production has been discussed on theoretical modelling concepts. Quantitative yield data from end use point of view are not found in the text.

With the growth of industrialisation, heavy metallic wastes discharged from industries, into the soil environment and their impact on microbial transformations affecting elemental cycles deserve to be considered and this aspect has been well covered in the volume.

The subject matter has been subdivided into extraction, isolation, characterisation, structures, metabolic reactions, kinetics and energy transformations and overall effects in the environment. This aspect is supported by information in the tabular form. Each chapter is supported by exhaustive bibliography and the important topics are indexed alphabetically. Subjects covered are of research and application interest to those engaged in the fields of Soil Science, Biochemistry, Microbiology and Environmental Science. The book deserves attention from several scientists in the related fields of Soil Biochemistry.

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Physics Reviews Ed. I.M. Khalatnikov, Vol 2 (1980) Harwood Academic Publishers GmpH, Chur, Switzerland.

Soviet Scientific Reviews are being published to make accounts of recent scientific advances in the USSR more readily and rapidly accessible to scientists who do not read Russian. It is planned to bring these out annually in different subjects, Section A being devoted to Physics. The volume under review contains seven articles, three deal with different aspects of experimental work in solid state physics and the remaining with theoretical topics.

V.S. Edelman reviews the recent work on the localization of electrons on the surface of liquid ^4He and ^3He . This is a highly interesting problem both from the point of view of theory as well as experiment. One is here concerned with a system of charges which is essentially two-dimensional. These studies also provide information about liquid surfaces. The author points out many still unsolved problems in the area.

Recent work on the intermediated state of highly pure superconductors is reviewed by I.P. Krylov. In the first section he discusses the reflection of charge carriers in a normal metal from the interface with a superconducting phase—first demonstrated by Andreev and now known as Andreev's reflection. The second section deals with helicons in the intermediate state whereas the last section is devoted to some nonlinear effects. The last article of the book is by V.S. Tsoi and deals with 'Interaction of conduction electrons with the surface of a specimen by means of transverse focussing'. The focussing of charged particle beams by magnetic fields, both longitudinal and transverse is well known. Recently experiments have been carried out to study the focusing of electrons in metals by longitudinal and transverse magnetic fields. It opens up the possibility of studying properties of surfaces beneath absorbed atoms and molecules — a region not accessible to study by other techniques.

The first article is by A.B. Zamolodchikov on 'Factorised S matrices and lattice statistical systems'. Factorized S matrices in relativistic theory were first introduced about five years ago. Since then lot of work has been done on this problem in USSR. This article describes important properties of these matrices and then discusses their formal connection with statistical lattice systems.

The next article is by P.W. Wiegmann on phase transitions in two-dimensional systems with commutative group symmetry. This is mainly based on the author's work on the character of phase transitions in two-dimensional systems with Abelian

symmetry group. As specific examples he considers a Coulomb gas and a one-dimensional Fermi gas.

V.P. Mineev has contributed an article on 'Topologically stable defects and solitons in ordered media'. Topological methods have not been used very much in physics and only recently the author and his coworkers have shown how the techniques of homotropic topology can profitably be used to discuss many problems of physics. As examples he discusses the properties of linear and point defects in superfluid ^3He and other condensed media, uniaxial and biaxial nematic liquid crystals, domain walls, solitons and textures.

The single biggest article is on 'Calculation of high orders of perturbation theory in quantum field theory' by E. Bogomal'nyi, V.A. Fateev and L.N. Lipatov. In this chapter the authors address themselves to two specific problems—that of estimating the sum of the

perturbation series and of finding the value of the asymptotic term. The main emphasis is on the method of steepest descent. The authors also describe a statistical approach for evaluating higher-order Feynman diagrams. The article starts by considering simple examples and later more complex and physically interesting problems are taken up.

All articles are well written and at a fairly advanced level. They will be useful for research workers in theoretical physics and condensed state physics, particularly in the area of liquid helium, superconductivity and interfaces.

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ANNOUNCEMENT

INTERNATIONAL SYMPOSIUM ON SALT & MARINE CHEMICALS, 4-6 MARCH 1982

The Symposium will be held for the first time in Asia, and, India is the third country, after the USA & W. Germany, the first and the second respectively. The forum will have leading world experts in the area of 'Salt & Marine Chemicals' participating in the deliberations spread over the following sessions:

1. Designing and operation of salt works. 2. Lake brines-subsoil brine and mining of salt. 3. Quality control and Mechanisation in Solar Salt works. 4. Recovery of Marine Chemicals gypsum, bromine and magnesium compounds. 5. Recovery of marine

chemicals, potash, trace elements and other chemicals. 6. Misc. aspects and 7. Plenary session.

The sponsors of the symposium are the Council of Scientific and Industrial Research, Department of Science and Technology, Hindustan Salt Ltd, Indian Salt Manufacturers Association, Salt Department (Govt. of India), and University Grants Commission and UNIDO.

Further information may be had from Shri. K. D. Padia, Publication Officer, Central Salt & Marine Chemicals Research Institute, Bhavnagar-364 002.