

Electrodynamics: A Modern Geometric Approach. William E. Baylis. Birkhauser Verlag AG, P.O. Box 133, CH-4010, Basel, Switzerland. 1998. 400 pp. Price: SFr 88/DM108.

This book focuses on an approach to electromagnetic theory based on modern geometric algebra or Clifford algebra. This approach avoids the clutter of indices common in tensorial treatments and thus emphasizes the underlying geometrical concepts and fundamental principles in a lucid manner.

The book can be viewed in two ways: It serves as a testing ground for applying the mathematics of geometric algebra and group theory. It also serves as a textbook which brings out the fundamental principles of electrodynamics. It has a nice blend of mathematical physics, fundamentals of electromagnetic theory and practical applications of electrodynamics.

It is extremely well written and contains numerous exercises and problems to help the reader gain familiarity with new concepts. Throughout the book the author emphasizes the conceptual framework of electromagnetism so that the reader does not get lost in details. Such a style is very valuable in a physics textbook. Although there are many books on electromagnetic theory written in the past, this book complements the existing literature on classical electromagnetism. The book simultaneously teaches the reader electromagnetic theory and more advanced mathematical concepts in a very concrete physical context.

The style of exposition, using geometric algebra as a way of understanding electromagnetism, is quite modern. The book is essentially self-contained. One does not require prior knowledge of the modern mathematics used in this book since it gives a readable and concise treatment of Clifford algebra and its geometric interpretations in the introductory chapter.

It will serve as an excellent textbook for graduate level physics courses on

electromagnetic theory and mathematical physics. It is also a good reference book for researchers in applied mathematics, theoretical physics and electrical engineering.

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First contribution to a Monograph of Septoria Species in India. J. Muthumary. Centre for Advanced Studies in Botany, University of Madras, Chennai 600 025, India. 1999. 119 pp. Price: Rs 250/US \$40.

The monograph aims to compile an 'account of the genus *Septoria* Sacc. reported from India' and while about 150 species have been reported, the present study concerns 83 species, 52 of which have been examined by the author from Type material specimens procured from 20 different established herbaria. Technical descriptions based on microscopic examination of the pycnidial structures and conidia have been given for all the species examined. A key to the species essentially based on host taxonomy and conidial measurements has been given for the species discussed in the monograph.

The publication provides useful technical descriptions to a limited number of species studied. It has however, not undertaken 'to study all species of *Septoria* known from India comprehensively' as stated in the introduction. The taxonomic basis for species recognition, particularly for species infecting taxonomically related host plants has been a debatable point and the monograph fails to clearly bring out the current concepts. For example, *Septoria adanensis*, *S. chrysanthemella* and *S. socia* occurring on *Chrysanthemum* are treated as distinct species (pp. 59-61) with the taxonomic key (p. 16) based on 3-4 or 3-5 septa and minor differences

in the width of the filiform conidia. On *Hydrocotyle*, the key mentions *S. nesodes* as having conidia less than 22 μm long (p. 15) while in the technical description the range of conidial size is given as 18-28 μm which is contradictory to the basis of the key. On the same host, *S. kodaikanalensis* has been described as a new species (p. 52) in which the limits of conidial measurement appear to be well within the limits of the earlier described species. The author's basis for species recognition and/or creating new species appears to be somewhat tentative without being based on clearly defined diagnostic features which are readily recognizable.

In Appendix II (pp. 109-110) the author has excluded 18 species without offering any comments on the basis for her recommendation to delete. This is regrettable since the list includes species described by well-known mycologists and her stating merely that 'a redistribution of these taxa was not possible because of insufficient delimitation of similar genera' is not pertinent and only leads to confusion in nomenclature of these forms. The author has not mentioned anything about the ascomycetous perfect states associated with *Septoria* conidial states (*Mycosphaerella*, *Phaeosphaeria*, *Leptosphaeria*, etc.) and information on this would have been a very desirable additional feature. The quality of the plates especially Nos 9 and 10 depicting host leaves with *Septoria* infection is very poor and totally non-descript.

Overall, the monograph can be rated as an average compilation of a limited number of *Septoria* species occurring in India. It does not fulfil the requirements as an authoritative taxonomic treatise presenting new knowledge or taxonomic concepts on this important genus of plant pathogen.

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