

Jan Olof Stenflo, *Solar Magnetic Fields, Polarized Radiation Diagnostics*, Astrophysics and Space Science Library, Vol. 189, 385 + xv pp., 1994, hard-bound Dfl. 190.–/\$ 108.–/£ 72.00, ISBN 0-7923-2793-4.

This book is much more a textbook on polarized radiative transfer, as indicated by its subtitle, than a monograph on solar magnetism. The first chapter gives a highly condensed overview of solar magnetic fields while the last two chapters return to solar physics in discussing diagnostics and instrumentation, but the other ten chapters constitute an authoritative and comprehensive description of polarized radiative transfer in stellar atmospheres. The examples come from solar physics but the formulation is general. This part is the backbone of the book. It contains complete derivations starting from first principles. They are split between classical and quantummechanical treatments, the latter serving to discuss quantum interference in Rayleigh (resonance) and Raman (fluorescence) scattering, partial redistribution, and the Hanle effect.

Stenflo's book is the first of a set of new texts on optical polarization diagnostics in astrophysics (I know of three others in the making). It is indeed high time that this complex and rich field is made accessible through monographs rather than journal articles. This one fills a good part of the need. It

is, naturally, coloured by Stenflo's preferences in formalisms and topics and also by emphasis on research at Zürich, but it is bound to become and stay a basic reference in astrophysics.

The book is well produced and contains excellent subject and symbol indices. However, it is more expensive than I would like for recommendation to students; a paperback edition is desirable.

*The Astronomical Institute at Utrecht*

R.J. RUTTEN