and by no means trivial examples, including that of the zero energy scattering of electrons by hydrogen atoms.

The book concludes with a treatment of the basic work by Lippmann and Schwinger on formal time-dependent scattering theory, but, for only the second instance in the volume, the treatment is probably too terse to be really useful. In general, the treatment of material throughout the text is sufficiently thorough to enable second year graduate students of physics not only to follow but to profit considerably; with the possible exception of some of the formal material on quantum mechanics and the treatment of the Dirac equation, the same should be true for students of mathematics.

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47[S, X].—HARRY H. DENMAN, WILFRIED HELLER & WILLIAM J. PANGONIS, *Angular Scattering Functions for Spheres*, Wayne State University Press, Detroit, Michigan, 1966, xix + 294 pp., 24 cm. Price $7.50.

Let

$$i_\perp = \left| \sum_{n=1}^{\infty} \{A_n \pi_n(\cos\alpha) + B_n \tau_n(\cos\alpha)\} \right|^2,$$

$$i_\parallel = \left| \sum_{n=1}^{\infty} \{A_n \tau_n(\cos\alpha) + B_n \pi_n(\cos\alpha)\} \right|^2.$$

$\pi_n(x) = dP_n(x)/dx$, $\tau_n(x) = x\pi_n(x) - (1 - x^2)d\pi_n(x)/dx$, where $P_n(x)$ is the Legendre polynomial of degree n. Also the coefficients A_n and B_n depend on the Riccati-Bessel functions.

$S_n(x) = (\pi x/2)^{1/2} J_{n+1/2}(x)$, $C_n(x) = (-1)^n (\pi x/2)^{1/2} J_{-n-1/2}(x)$. A_n and B_n are functions of $S_n(\alpha)$ and $S_n(\beta)$ where $\beta = m\alpha$. This volume tabulates $i_\perp/\alpha^3$ and $i_\parallel/\alpha^3$ to 5S for $\alpha = 0.2(0.2)25$, $\alpha = 0°(5°)180°$, $m = 1.05(0.05)1.30$, 1.333.

The method of computation and the checks used are explained in detail, and the authors conclude that "the fifth figure in these tables is *correct* in most cases, and is *significant* almost always." (The italics are theirs.) The present tables are the most complete on the subject. For a description of the physical aspects of the problem to which the tables relate and previous tables, see *MTAC*, v. 3, 1949, p. 483–484 and *MTAC*, v. 6, 1952, p. 95–97.

Y. L. L.

48[W, X].—V. S. NEMCHINOV, Editor, *The Use of Mathematics in Economics*, The M. I. T. Press, Cambridge, Massachusetts, 1965, xxi + 377 pp., 26 cm. Price $12.50.

The present work constitutes a sample of recent East European (principally Soviet) work on mathematical economics.

The first article, by V. S. Nemchinov, gives an introductory discussion of industrial input-output matrices and their applications, with emphasis on planning of uniform growth. A gross national balance sheet for the Soviet economy (years