

complex, of what is the basis of the uncertainty principle, and of "what really causes quantization," I think a student will come away from this book without a clear concept of a quantum state and the significance of superposition. Some of the discussions of "matter waves" seem likely to mislead students to think of the wavefunction as an actual physical wave.

Phenomena such as x rays, the photoelectric effect, electron diffraction, and radioactivity are presented with remarkably little experimental detail. This approach removes the juice from the physics and gives the students dry husks. Too often "experiment tells us" is all the justification we are offered. Students will get no feeling of the texture of physics from this book.

Maybe Harris limits experimental detail in order to keep the book to a reasonable size. Perhaps this is also why several descriptions and explanations are vague and compressed to the point where I found myself wondering, "What will a novice student make of this?" But a lack of sympathy for specifics suffuses the book. The explanation of the Davisson-Germer experiment, along with the introduction of Bragg scattering and multi-slit diffraction, is an example. (It does not help that the angles describing these are the complements of those usually used.) Lack of detail also weakens the "Progress and Applications" sections that link the physics of the chapter to interesting current applications and mysteries.

The book is attractively designed. Its layout is clean and easy to follow. There are some first-printing glitches, such as the misspelling of Karl Schwarzschild's name; an occasional bad problem (of the 30 problems that I chose randomly and worked, two seemed incorrectly posed and one answer in the back of the book was wrong); and some typos (one of these makes cosmic rays into high energy photons instead of protons). One could live with these, but the larger deficiencies I have described make this an unsatisfactory book.

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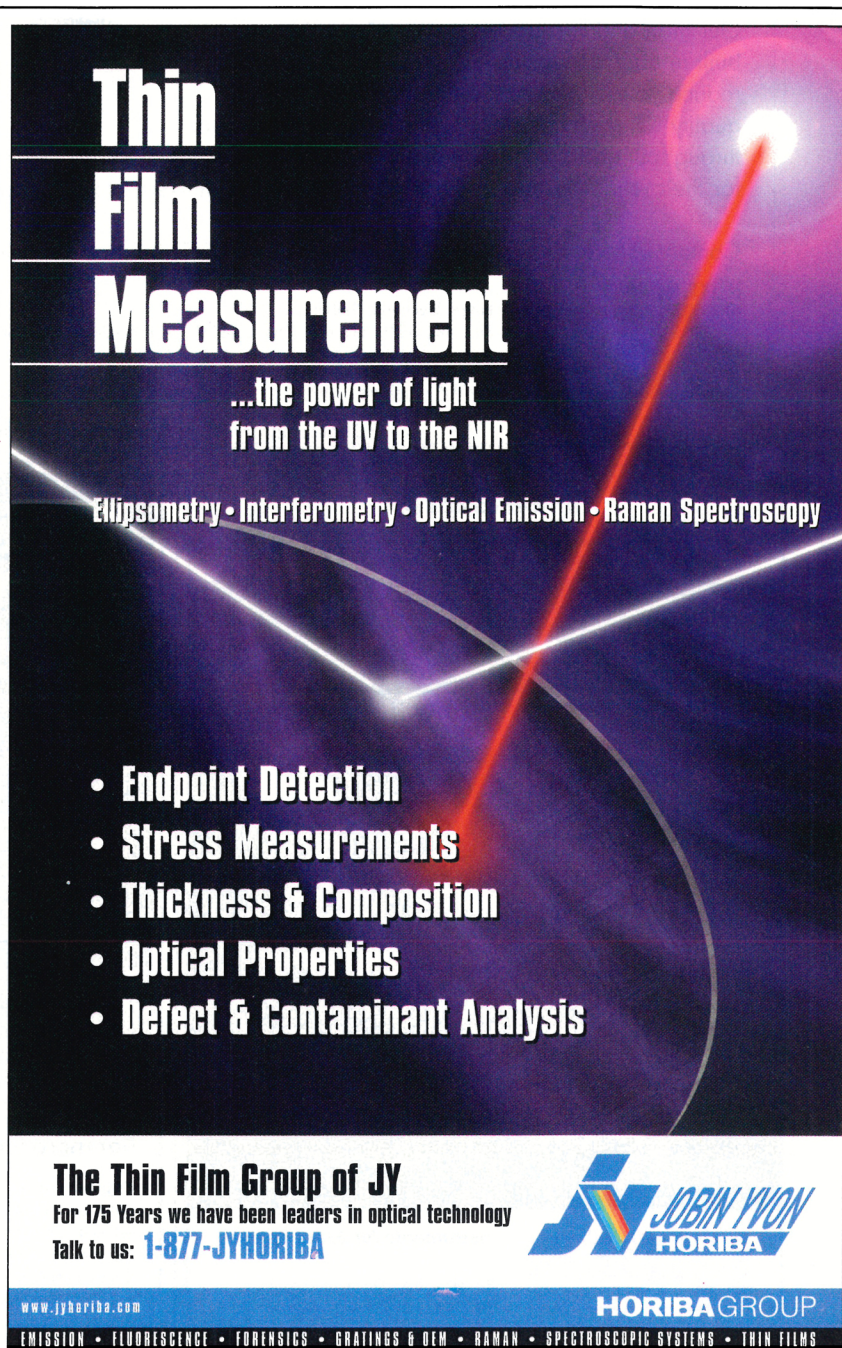
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