**Computer films' quantum physics**

Two MIT scientists are using animated film techniques to bring to life some of the difficult concepts of quantum physics. Instead of a cartoon, however, the animation is a computer which performs the complex equations and draws the results on a cathode-ray tube display all in the span of a second. Human animators would labor half an hour or more just to draw the picture for a single movie frame.

Exciting to veteran physicists.

These computer-generated films are unlikely to be featured at neighborhood theaters, but they are impressive to veteran physicists who never before have been able to watch the complete time-development of some of those quantum mechanical solutions. To a physicist, the peculiar oscillations of a wave representing a beam of particles as it confronts a force field is especially exciting because it exhibits in detail, the phenomenon of scattering, one of the most important experimental techniques in modern physics.

The movie making techniques was described today at a New York meeting of the American Physical Society and American Association of Physics Teachers by Dr. Harry M. Schey, a physicist at MIT's Education Laboratory. Dr. Schey is one of three co-developers of the filming technique. The others are Dr. Judah L. Schwartz, also a physicist at the Education Laboratory, who is in charge of the Quantum Physics Project, and Dr. Abraham Goldberg of Lawrence Radiation Laboratory in California.

Computer film wins award

Their computer-generated film on 'Scattering in One Dimension' won the Italian Association of Scientific Cinematography award when it was exhibited at the Eleventh International Exhibition of the Scientific-Didactic Film held last November in Padua, Italy.

At the MIT Education Laboratory researchers and faculty members are engaged in a variety of experimental work with new teaching techniques and innovations in education. The computer-generated film project is one of several experiments aimed at making more effective use of the computer in education.

Add students with concepts

Dr. Schey sees this film technique as a means of helping students to visualize physical concepts that are outside ordinary experience. "Since quantum physical phenomena are beyond the scale limits of normal perception, a student coming to grips with them for the first time is frequently hampered by the fact that they seem to contradict his own intuitions about the real world," Dr. Schey explained. "In the co-generated film, we can simulate a scaled world in which quantum physical or relativistic phenomena become very apparent."

Guiding the Quantum Physics Project is a Board of Advisers made up of a number of the country's leading physicists. Included are two authors of the leading textbooks on quantum physics, several heads and former heads of national laboratories, and two MIT scientists who have contributed to the project. Among the advisers are Dr. Charles S. Townes, director of the Lawrence Radiation Laboratory; Dr. Abraham Goldberg, director of the Education Laboratory; and Dr. Judah L. Schwartz, head of the Quantum Physics Project.

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