Educational Java Applets in Solid-State Materials

Chu Ryang Wie

(Invited Paper)

Index Terms—**Courseware, Java applet, solid-state, visual simulation.**

I. Summary

WWW-based coursewares will benefit from libraries of subject-specific software objects that are embeddable in HTML documents. Development of libraries of Java applet programs in various subject areas is timely and important. The developed applet library should enable educators to include these applet programs in their html-based multimedia courseware. This paper discusses the development and utilization of Java applet programs in the area of solid-state materials and devices. The applet programs developed so far, with the purpose of providing a dynamic visual simulation of solid-state material concepts and device principles, are included in the courseware section.

Chu Ryang Wie received the B.S. degree in physics education from Chonnam National University, Kuangju, Korea, in 1980, the M.S. degree in physics from Seoul National University, Seoul, Korea, in 1982; and the Ph.D. degree in applied physics from California Institute of Technology, Pasadena, in 1985.

He is Professor of Electrical Engineering at State University of New York at Buffalo. He has done research in MeV ion implantation, radiation damage, deep levels, and interface properties in semiconductor materials and devices; resonant tunneling diodes; and high-resolution X-ray diffraction. Past and current research work involves high-resolution X-ray diffraction analysis of epitaxial semiconductors. Current interests include the development of WWW-based dynamic visualization tools for physics and engineering education, and the associated software engineering methodologies.

[Click on the following link to access the portion of this article published on the CD-ROM for this issue. Access requires a browser configured to accommodate HTML and GIF files as well as Java applets written in Java 1.0 and Java 1.1. *Note*: the HTML documents contain some links to files on the web that may no longer be available.]