
SYMPOSIUM A

Energy Beam-Solid Interactions And Transient Thermal Processing

This symposium was the sixth in a series of Materials Research Society symposia devoted to energy-beam interactions with solids and transient thermal processing of materials and devices.

More than one hundred papers were presented in oral and poster sessions. There were three plenary talks: fundamentals of energy-beam interactions with solids (W.L. Brown); applications of energy beams for material processing (J.W. Mayer), and device applications of rapid thermal processing (J.F. Gibbons). In addition, seventeen well-known international scientists were invited to give papers on a large variety of topics, ranging from femtosecond spectroscopy, rapid thermal annealing of Si and GaAs, defects in rapidly thermally annealed solids, and crystal growth, to laser synthesis of compounds. In response to the strong interest in beam crystallization of semiconductors on insulators (SOI), special emphasis was placed on the emerging SOI technologies and their applications. There were invited and contributed papers on beam recrystallization of semiconductors (Si, GaAs, and InSb) on insulators. Furthermore, other SOI technologies such as CVD, oxygen implantation, and porous oxide formation were reviewed. Technological aspects of 3-D circuits were also discussed. An evening panel session on SOI technologies was well attended, and many important issues were brought out in the panel session. The panelists were Y. Akasaka, G.W. Cullen, C. Hall, J.F. Gibbons, and P.J. Vail. Although SOI technologies are useful for many applications, most of the panelists agree that the most appropriate near-term applications are for high-speed, high-density integrated circuits. Various SOI technologies, including silicon-on-sapphire (SOS), are currently in the running, but the majority of the panelists felt that for SOI technologies to be widely adopted, SOI must be available as a proven manufactured product within two to three years.

Overall, the symposium was very well attended, and the international participation was especially strong. The symposium was sponsored by Rome Air Development Center, Army Research Office, Office of Naval Research, and Xerox Corporation.

John C.C. Fan
Lincoln Laboratory, Massachusetts Institute of Technology
Noble M. Johnson
Xerox Palo Alto Research Center
Chairmen



JOHN FAN (left) and NOBLE JOHNSON

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