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Distinguished Lecture Series

Growth-control and microstructure characterization of magnetic thin films, application to high density perpendicular magnetic recording media

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4:30 PM, 29 June, 2011 (Wednesday)
Room 603, Chow Yei Ching Building, Department of Electrical and Electronic Engineering,
The University of Hong Kong
(for map, please see http://www.eee.hku.hk/contact/contact_map.htm)

Abstract:

This lecture covers the technology and the physics for controlling the microstructure of magnetic thin films, focusing mainly on perpendicular recording media and related magnetic materials. Initially, technological developments will be briefly reviewed and then the following topics will be discussed: (1) nucleation and growth of magnetic thin films through heteroepitaxy on nonmagnetic underlayers, (2) nanostructure and nano-composition characterization, (3) application to perpendicular magnetic recording media, (4) magnetization structure analysis, (5) epitaxial growth of single-crystal magnetic thin films with stable, metastable and ordered crystal structures, and (6) patterned-type perpendicular recording media for higher densities. The relationships between film microstructure and magnetic properties will also be discussed.

Biography:

Prof. Masaaki Futamoto received the B.E., M.E., and Dr degrees in material science from Osaka University in 1971, 1973, and 1982, respectively. He joined Central Research Laboratory, Hitachi Ltd., in 1973 and worked on electron emissive materials. From 1982 to 1983, he was a visiting scientist at the University of Sussex, U.K. From 1983 to 2003, he has engaged in the research and development of high density magnetic recording, in particular the development of perpendicular magnetic recording media. From 1996 to 2001, he served as the leader of a research group in a Japanese National Project that was established to develop future-oriented magnetic recording technologies. In 2004, he was appointed as a professor of the Faculty of Science and Engineering, Chuo University. His research interests include high-density magnetic recording, magnetic recording media, thin film heads, epitaxial growth of thin films, structure and composition characterization of magnetic thin films, and magnetic imaging. Prof. Futamoto is a Fellow of the IEEE since 2002.

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