

Department of Mechanical & Aerospace Engineering
Distinguished Lecture



Professor Frank Talke

Center for Magnetic Recording Research and
Department of Mechanical & Aerospace Engineering
University of California, San Diego

Wednesday, May 27, 2009 @ 3:00 P.M.
Powell-Focht Bioengineering Hall – Fung Auditorium
Reception to Follow

**Nano-Technology in
Present and Future Hard Disk Drives**

ABSTRACT

Storage of information in hard disk drives is accomplished by the relative motion between a magnetic read/write element and a magnetic hard disk. In order to increase the storage density, the flying height of the read/write element must be reduced to less than 3 nm, and the track density must be increased to more than 500k tracks per inch. To reduce magnetic noise, each recorded bit must be isolated from its neighboring bits leading to the so-called “discrete track” or “patterned media” technology. Manufacturing of patterned media is a problem of nano-technology, requiring resolution of 10 nm or less. In this talk, an overview of the present state of the art of disk drive technology is given and nano technology problems occurring in the storage of information in hard disk drives are discussed. Requirements for future disk drives are presented along with alternative methods of information storage.

Bio-Bibliography

Professor Frank Talke has been a professor in the Department of Mechanical and Aerospace Engineering at UCSD since 1986. He holds an endowed chair in the Center for Magnetic Recording Research and worked at the IBM Research and Development Laboratories, San Jose, CA, from 1969 to 1986. Prof. Talke is a Fellow of the ASME, the STLE and the IEEE. He is the recipient of the First Annual Seagate Tribology Award and received the ASME medal in 2008. He also received the Max Planck Price for International Cooperation and the von Humboldt Price in 2007. Professor Talke was elected a member of the National Academy of Engineering in 1999, and a member of Acatech, the Academy of Technikwissenschaften, Germany, in 2009.

The Professional Community is Cordially Invited

Information: (858) 534-0113