The Department of Mechanical Engineering/College of Engineering and Applied Sciences
Stony Brook University

Mechanical Engineering Seminar

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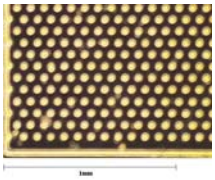
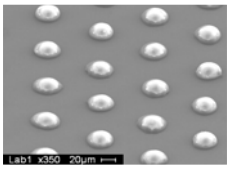
Lecture Title: Fabrication and Applications of Micro Lens Array

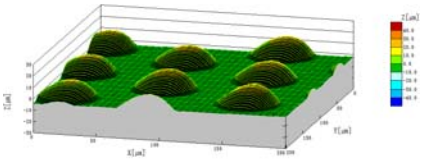
Wednesday, August 6, 2008, 11:00AM, Room 301 Engineering Building

Abstract

Micro lens has been widely employed in various industrial products, such as flat panel display, biomedical photonics, optical communication, optical storage, and micro electro-optical-mechanical systems, in the past decades. While most applications of micro lens take the advantage of multiple lenses, this talk stresses on fabrication methods of micro lens arrays. Among different fabrication technologies, the thermal reflow process, combining with the LIGA (Lithographie GaVanoformung Abformung) process, i.e. the lithography electroforming and micro molding, is adapted to fabricate micro lens array because of its simplicity, low fabrication cost and acceptable quality in uniformity and surface roughness. In addition to this fabrication method, several issues including profile limitation due to surface tension and gravity, balance between numerical aperture (NA) and aberration, and diffraction effect among apertures on the mask, are also addressed.







Biography

Dr. Jhy-Cherng Tsai is an Associate Professor at the Department of Mechanical Engineering, National Chung-Hsing University, Taiwan. He earned his Ph.D. in Mechanical Engineering and M.S. in Computer Science from Stanford University in 1993 and 1990. He also holds an M.S. and a B.S. degree in Mechanical Engineering from National Taiwan University, Taiwan. Dr. Tsai is a member of CSME Taipei, CIAE, CMMT and IEET. His research interest includes tolerancing engineering, precision engineering, and automation engineering.

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