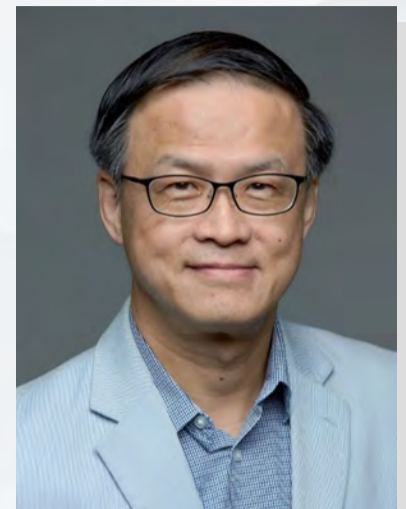




Metallic Nanotube Array (MeNTA) and Beyond: a Semiconductor-based Thin Film Technology



2 Feb 2023 (Thu) | 10:30 am

Seminar Link: <https://cityu.zoom.us/j/91749965254>

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Abstract

This presentation reports on the wafer-scale fabrication of metallic nanotube arrays (MeNTAs) using semiconductor-based thin film deposition. This nanostructure with highly ordered periodicity has many uses as MEMS and NEMS devices. Various elemental metals and alloys have been used to prepare MeNTAs via the sputter deposition over a contact-hole array template created in the photoresist. The proposed nanotubes can be fabricated over a wide range of heights and diameters (from a few hundred nm to 20 μm) in various shapes, including tall cylinders and dishes. In addition, because it is manufactured using the semiconductor process, MeNTA is ready for integrating with other nanomaterials (e.g., ZnO nanowires, Au nanoparticles, and graphene oxides), becoming **nanohybrids** and suitable for many applications. The presentation will give applications such as thermal emitters, triboelectric nanogenerators, SERS-active biosensors, and microfluidics.

About the Speaker

Dr. Jinn P. Chu is the Chair Professor at National Taiwan University of Science and Technology. He obtained his Ph.D. in Materials Science from University of Illinois at Urbana-Champaign in 1992. He is a Fellow of MRS-Taiwan (MRS-T) society and has served as the elected President of Taiwan Association for Coatings and Thin Films Technology (TACT) in 2012-14. Currently, he is Vice President of MRS-T and past Chair of American Vacuum Society (AVS)-Taiwan Chapter. He is appointed as AVS journal JVST Associate Editor in January of 2023. In recognition of his research, he has received Taiwan Ministry of Science and Technology Outstanding Research Award, Taiwan National Innovation Awards, American Chemical Society (ACS) Award at Japan nano tech 2018. He is also listed in the Top 2% Scientists (Career Impact) (1960-2021) and Top 2% Scientists 2021 by Stanford University. His research interests are focused on ACS award-winning metallic nanotube arrays for a wide range of MEMS and NEMS applications, such as biosensors, optical grating, and nanogenerators.