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**Yuntian Zhu**
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**Short Biography**
**Dr. Yuntian Zhu**
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Yuntian Zhu joined the City University of Hong Kong in 2020 as a Chair Professor, before which he was a Distinguished Professor in North Carolina State University, where he worked from 2007 to 2020. He worked as a postdoc, staff member and team leader in Los Alamos National Laboratory (LANL) until 2007 after obtaining his Ph.D. degree from the University of Texas at Austin in 1994. In recent years he has focused on the deformation mechanisms at dislocation level and mechanical behaviors of heterostructured materials and nano/ultrafine-grained materials. He is an experimentalist with a primary interest in fundamental aspects of materials research and also in designing materials with superior strength and ductility. He and his colleagues are pioneers of the emerging field of heterostructured materials. He recently received the Institute of Metals Lecture and Robert Franklin Mehl Award, ASM International Albert Sauveur Award, IUMRS Sômiya Award, TMS SMD Distinguished Scientist/Engineer Award, and TMS Leadership Award. He has been elected to the Academia Europaea, European Academy of Sciences, National Academy of Inventors (US), as well as Fellows of five academic societies: TMS, MRS, APS, ASM, and AAAS. More information can be found in his personal website: http://www.hsm-lab.com/

**Title of the keynote talk: Strategies to improve the strength and ductility of nanostructured materials**

**Abstract of the keynote talk**

Nanostructured metals usually have high strength but this usually sacrifices their ductility. In this talk, I'll discuss some strategies to improve the strength and ductility of metal and alloys. Contrary to some belief, nanostructured metals have very good plasticity. The low ductility is resulted from their low strain hardening rate. There two approaches to increase the strain hardening rate. One is to recover their capability to accumulate forest dislocations, which provides dislocation hardening. Strategies related to this approach include introducing second-phase nano particles in the grain interior, and deformation twinning. The other approach is to activate hetero deformation induced strain hardening, which can be activated by engineering heterostructures in the nanostructured metals. This represents a new design paradigm for nanostructured metals and alloys. I'll present some successful examples in the talk.