



Contribution ID: 250

Type: **Invited Speaker**

## **Nano-materials Engineering and Manufacturing in Hard Disk Drives for Cloud Storage**

*Sunday 27 November 2016 15:15 (20 minutes)*

We are experiencing an explosion in the amount of digital content that is being generated every minute and the need to store this content has seen the demand for data storage reach unprecedented levels. This has led to the emergence of the “Cloud” as the pre-eminent paradigm for data storage and represents a marked shift from how data used to be stored just a few years ago.

This talk focuses on advances in the field of nano-materials engineering and manufacturing in order to achieve increases in storage capacities in hard disc drives to meet the growing demand for Cloud storage. Nano-engineering of the write and read elements, head-to-medium spacing, and media grains are discussed in, both conventional Perpendicular Magnetic Recording (PMR), as well as Heat-Assisted Magnetic Recording (HAMR) applications and some of the manufacturing challenges and considerations.

Finally, projections for the growth of Areal Density from the current 1Tbits/in<sup>2</sup> to 5 Tbits/in<sup>2</sup> and beyond are discussed.

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**Session Classification:** Hornbill 1

**Track Classification:** Nano-fabrication & manufacturing