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ELECTRICAL & COMPUTER ENGINEERING
TEXAS A&M UNIVERSITY

S E M I N A R

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Simple Analog Design Techniques: the Future of Magnetic Disk Drives

by

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Abstract: Magnetic Disk Drives, more commonly known as Hard Disk Drives (HDD), continue to be the dominant market choice for large scale data storage. Nevertheless, the recent introduction and continual advancement of handheld consumer products is creating a shift in the market direction and generating a lot of questions about their sustainability and future.

This talk will give a brief history of HDDs and examine the market trajectory in the near future. A presentation of the HDD system will follow with a description of the major Preamp analog sub-systems and their design challenges. Next, an overview of recent research is given aimed towards the next chapter in the history of HDDs. Finally, a closer look into one of the most fundamental analog building blocks will reveal that simple and straightforward design techniques are the core of high performance products.

Rida Assaad received his Ph.D. in electrical engineering from Texas A&M University in December 2009. He then joined the Mobile Integrated Solutions (MIS) team at Texas Instruments in Dallas, where he worked on TX/RX Audio Codec Channels, Resistor-String DACs, SAR ADCs, LDOs, switching regulators, and was the lead architect and designer of a 30V/2.5A Battery Charger with integrated sense FETs for handheld mobile devices. Later in 2012, he moved to the Storage Products Group (SPG) where he is currently involved in the design of next generation Preamp chips for HDDs.