

An Introduction to the Lecture: Peanuts vs Pyramids: Two Perspectives on MEMS

The attached lecture was presented at MIT on February 24, 2009, and provides a good window into what I did professionally, both in research at MIT and in my latter-day commercial venture with Polychromix.

Here are a few comments to help you enjoy the talk (rather than suffer under levels of jargon).

MEMS is an acronym for “Microelectromechanical Systems,” little gadgets made of silicon using the kinds of fabrication technologies employed to build integrated circuits. I spent the last twenty-odd years of my time at MIT working both on novel MEMS devices and on the development of CAD systems for designing MEMS. The CAD systems we created opened a new segment of the software industry, pioneered by two companies, Microcosm Technologies and IntelliSense, both of which were started by people from my group. The MEMS device work led to two companies, Micromet Instruments, founded in 1982 and sold to Geo-Centers in 1991, and Polychromix, founded in 2000 and sold to ThermoFisher Scientific in 2010.

Electromechanical actuation refers to the use of applied voltages to create forces that make things move. (Opposite charges attract.)

The talk includes reference to the LCROSS NASA mission, looking for water on the moon. The Polychromix part of this project was led by David Day in collaboration with NASA personnel. I’m happy to report that the experiment described in the talk did work, and our near-infrared spectrometers successfully detected water on the moon. This is the subject of the companion video, “Yes, There Is Water on the Moon.”

The PHAZIR developed by Polychromix is still available from ThermoFisher Scientific:
<https://www.thermofisher.com/order/catalog/product/MICROPHAZIRRX#/MICROPHAZIRRX>

I hope you enjoy the video and now have a better sense of “what did I do, anyway?”

/Steve Senturia

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