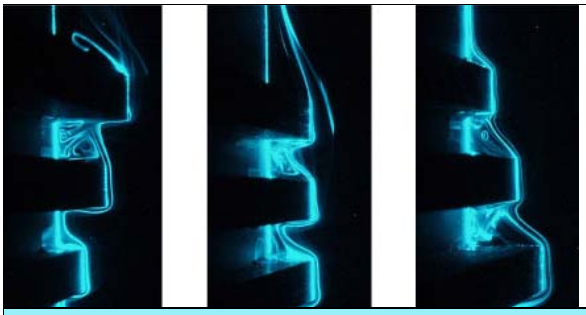

Electronic Cooling/Packaging Seminar Series

Dr. Gamal Refai-Ahmed
AMD Fellow

Gamal Refai-Ahmed was born in Alexandria, Egypt.He obtained an M. A. SC. and Ph. D. in Mechanical Engineering from the University of Waterloo, Canada. He has specialized in the thermal management of electronic and optical packaging where he developed innovative electronic/optical packaging products in Nortel, Astec-Emerson, Cisco, Ceyba and ATI Technologies. Currently, he is the AMD Fellow and Chief Thermal Architect of the Graphics Products Group. He advocates the importance of the thermal effect in electronic packaging of the next generation of multi-media systems utilizing 55nm and below technologies. In 2004, ASME awarded Dr. Refai a fellow grade as he is recognized as one of the world's experts in thermal management of electronic packaging. In 2006, he was elected to be a member of the executive committee of electronic and photonic packaging division, EPPD, ASME and In 2007, he was elected to be the secretary of the electronic packaging committee, K-16, Heat transfer Divison, ASME. Dr. Refai-Ahmed is also a member of the organized teams of the premier conferences of electronic packaging, IPACK and ITHERM, for ASME and IEEE since 2000.

Challenges in the Present and next Generation of Graphics Processor Units

The present and future use of the graphics processor unit, GPU, shall not be limited to supporting sophisticated Internet use games and complex three dimensional video applications. In the coming years, it is expected that these graphics/video devices will act as co-processors in parallel with the CPU in these applications''.
Moving in that direction, it has been witnessed in the past few years that there has been a tremendous increase in the power dissipation of the GPU in order to address these growing applications and support their requirements. In the present lecture, the performance trend of the GPU in the past 25 years will be disclosed, as well as, its power roadmap. In addition, The ITRS roadmap will be compared in order to give a closer prospective to the growing challenge in this segment of market versus other applications.
This will be followed with the identification of the different types of thermal management techniques to provide enabling solutions to continue the growth of the performance in the future GPU.

Date: October 31

Rm: 1-390 at 1pm

Hosted by: ME MLK Visiting Prof. Agonafer

MIT Department of Mechanical Engineering