



RESISTIVE RANDOM ACCESS MEMORY (RRAM) TUTORIAL

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ABSTRACT: RRAM technology has made significant progresses in the past few years as a competitive candidate for the next generation non-volatile memory. In this talk, I will give an introduction to RRAM technology. First, I will discuss the physical mechanism of RRAM devices. Then, I will discuss the performance metrics that evaluate the RRAM characteristics for memory applications. And then, I will introduce some recent progress of the array-level integration and macro chip design of RRAM by various companies. Finally, I will give an outlook on the future trend of RRAM technology – the monolithic 3D integration of RRAM for ultra-high density storage application.

BIOGRAPHY: Shimeng Yu is an assistant professor of computer engineering affiliated with electrical engineering at Arizona State University, USA. He received the B.S. degree in microelectronics from Peking University in 2009, and the M.S. degree and Ph.D. degree in electrical engineering from Stanford University in 2011, and in 2013, respectively. He did summer internship in IMEC, Belgium in 2011, and IBM TJ Watson Research Center in 2012. He has been working on the RRAM technologies since 2008. His current research interests are emerging devices and circuits beyond CMOS, and new computing paradigms beyond Boolean logic. He has published >30 journal papers and >50 conference papers with a citation ~1000 and H-index 17. Among this honors, he was awarded the Stanford Graduate Fellowship from 2009 to 2012, the IEEE Electron Devices Society Masters Student Fellowship 2010 and the IEEE Electron Devices Society PhD Student Fellowship in 2012.