THE FeFET – LEARNING TO HANDLE THIS NEW POWERFUL DEVICE AVAILABLE IN 2x CMOS PLATFORMS

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With the discovery of ferroelectricity in HfO2 based thin films 2011 and the co-integration of ferroelectric field effect transistors (FeFET) into standard high-k metal gate (HKMG) CMOS platforms 2016/17 by Globalfoundries, the FeFET has emerged from a theoretical dream to an applicable reality. Maturing in the beginning as a low-cost, low power eFLASH replacement, the FeFET yet is much more than a classical stiff eNVM cell. With its great HKMG CMOS compatibility, its flexibility and its unique switching properties, it is rather to be seen as a new versatile device that promises to open up new worlds. Especially the neuromorphic design community has shifted focus towards this novel device with game-changing potential. In this talk we will discuss the actual status of GlobalFoundries FeFET technology, investigate the operation and use of this device, and discuss remaining challenges and outlook.