

Title: Fitting magnetic devices into the memory pyramid: opportunities and challenges

Abstract:

Magnetic tunnel junction (MTJ) based MRAM devices have recently reached industrial productions at Major semiconductor foundries. In this presentation, I will review the opportunities and challenges of integrating STT-MRAM into production, and the perspectives that new switching mechanisms such as spin-orbit torque (SOT) and voltage control of magnetic anisotropy (VCMA) switching provides for the future of MRAM technologies in application.

Biography:

Dr. Sebastien Couet graduated his PhD in 2008 at the DESY laboratory (in partnership with the University of Hamburg) in Germany. His PhD focused on in-situ growth studies of magnetic multilayers using synchrotron radiation. In 2009, he joined as a postdoctoral researcher in the Nuclear solid-state physics group at the Katholieke Universiteit Leuven (KUL) in Belgium. His research focused on using and developing nuclear methods (x-ray nuclear excitations, neutron scattering) to study structural and magnetic properties of interfaces, bilayers of magnetic materials and superconductors, ferroelectrics and metals. In 2014, He joined Imec in Leuven (Belgium) as a senior thin film deposition engineer. He focused on magnetic multilayer stack development to support the MRAM memory activity as well as other spin-based memory and logic device integrated on 300mm wafers. Since 2021, he is the MRAM program manager at Imec, overseeing the development of STT, SOT and VCMA-MRAM technologies for memory applications. He has co-authored 91 scientific publications in peer-reviewed journals (h-index

