

Leading advanced thin film technologies for electronic-based microsystems

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Thin films are the core element of any electronic-based system (EBS). The functionality of modern semiconductor devices is often enabled by the performance offered by materials on the nanoscale. The properties of advanced thin films need to be tailored not only from chemistry-related aspects, but also through the selection of suitable device architectures and deposition processes. The capability to minimize defects or introduce them ad-hoc in the thin film nanostructure is often the key to drive the performance towards the application's needs. At Silicon Austria Labs (SAL), in particular in the Thin Film Technologies Research Unit, we develop novel thin film materials and processes for EBS applications, targeting technological routes enabling industrial upscaling. Our methodology includes physical and chemical vapor deposition up to 8" wafer sizes combined with both structural and functional wafer-level characterization. Typical applications are nitride and oxide piezoelectric thin films for piezoMEMS sensors, actuators, and transducers, RF MEMS, optical thin films for filters and transparent conductors, metallization and passivation layers. SAL participates as Hosting Site to two Chips JU Pilot Lines (FAMES and WBG), focusing on novel RF passive devices on FD-SOI wafers and wide band gap semiconductor substrates. During the pitch, we will present an overview of SAL's competences in the development of advanced thin film technologies, thin film-based devices and our involvement in the Chips JU Pilot Lines.