

EUROMAT 2019 / Area C: Processing

SYMPOSIUM: C11

Title: Processes and Materials for Nanoelectronics		
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Summary		
<p>Understanding, engineering and integrating novel functional materials are needed in order to allow further progress in scaled electronic devices and in the realization of circuits beyond the Von-Neumann architecture. These efforts are required to process the vast data produced from an increasing number of connected devices. This Symposium addresses the main challenges the materials science community is facing to fulfill these requirements. The main topics will be related to materials characterization and properties as well as their processing and integration into devices.</p>		
<p>It will include, but is not limited to, the following topics:</p> <ul style="list-style-type: none">• Channel semiconductor materials: strained-Silicon, (strained-)Ge, SiGe alloys, GaN, III-V, 2-D materials• Materials for non-volatile memory devices: PCM, Oxides;• Ferroelectrics and insulating materials• Magnetic materials for MTJ and related devices• 2D materials and devices• Materials for power devices• Materials for on-chip energy harvesting including solar energy• Physical and bio-chemical Sensors• Emerging novel processes: growth, fabrication, doping, stress• Advanced characterization techniques: composition, defects, dopants, stress• Materials and processing related to architecture: planar (Silicon-On-Insulator) vs 3D (multi-gate, nanowires)• Gate-stack materials for future switching devices• Resistive RAM materials and devices• Materials, processing, and characterization for TFET, SET• Physical modelling of processes and devices		