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Latest Development on Superconductive Sensors, Detectors and Their Applications

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***Abstract*–This is a general introductory talk about research on superconducting electronics, carried out at SIMIT-CAS. The talk is divided into three parts. In the first part, I will give a short introduction to superconducting electronics together with a brief history of research at SIMIT-CAS. In the second part, I focus my talk on the development of SQUIDs and their applications in bio-imaging, including Magnetocardiogrph (MCG), fetal MCG, Magnetoneurography (MNG), Magnetoencephalography (MEG), Ultra-Low Field Magnetic Resonance Imaging (MRI) and Geophysical Prospecting, including ground-based TEM and airborne full tensor magnetic detection systems. And the third part is on the development of Superconducting Nanowire Single Photon Detection (SNSPD) and their applications on LIDAR, quantum key distribution (QKD) and quantum computation.**

***Keywords (Index Terms)*–Superconducting electronics, SQUIDs, Bio-imaging, magnetic resonance imaging; SNSPD, LIDAR, QKD, quantum computation**

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