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Sommario/riassunto	This thesis makes a significant contribution to the development of cheaper Si-based Infrared detectors, operating at room temperature. In particular, the work is focused in the integration of the Ti supersaturated Si material into a CMOS Image Sensor route, the technology of choice for imaging nowadays due to its low-cost and high resolution. First, the material is fabricated using ion implantation of Ti atoms at high concentrations. Afterwards, the crystallinity is recovered by means of a pulsed laser process. The material is used to fabricate planar photodiodes, which are later characterized using current-voltage and quantum efficiency measurements. The prototypes showed improved sub-bandgap responsivity up to 0.45 eV at room temperature. The work is further supported by a collaboration with STMicroelectronics, where the supersaturated material was integrated into CMOS-based sensors at industry level. The results show that Ti supersaturated Si is compatible in terms of contamination, process integration and uniformity. The devices showed similar performance to

non-implanted devices in the visible region. This fact leaves the door open for further integration of supersaturated materials into CMOS Image Sensors.