

New Frontiers for Infrared

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Infrared Science and Technology has been, since the first applications, mainly dedicated to Surveillance and Security besides Astronomy: since the 70's specialized techniques have been emerging in medical and cultural heritage diagnostics, building and aeronautics structures control , energy savings and remote sensing. Most of these applications were developed thanks to the impressive development of Infrared FPAs Sensors with high numbers of sensors pixels and working at room temperatures. Besides these technological achievements in Sensors/Receivers, advanced development of Infrared Laser Sources from near Infrared up to Far Infrared wavelength bands have been developed, especially in the form QCL (Quantum Cascade Laser), allowing Wide Band Telecommunications and High Sensitivity Systems for Threat Gases Detection.

Besides these advanced historically classical technologies, new sensors and sources devices with improved performances in specialized applications are emerging in the Very Far Infrared Region up to Sub-millimetre Wavelengths, the so called THz (TeraHertz) Region.

A survey of the historical Growth and Forecast of the Future Developments in Devices and Systems for the New Frontier of Infrared will be presented and discussed.