Recent advances in III-V infrared detector technology in Poland

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III-V semiconducting compounds have been the subjects of intense studies due to their importance for infrared detector technology. It is reported recent progress in Poland in the design and technology of III-V detectors operating in the (1.5-7.0) mm spectral range. Various homo- and heterojunction p-i-n conventional and resonant cavity enhanced photodiodes, avalanche photodiodes and type-II InAs/GaSb superlattice photodetectors are discussed. The characteristics of different types of III-V detectors studied by computer simulations are considered.

The optimized structures were grown using Molecular Beam Epitaxy on GaAs and InP substrates. Improvement of operation of devices can be achieved by the use of monolithic optical immersion.

The performance of III-V and HgCdTe based devices is compared. Possible applications of the photodetectors are discussed.