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Photoluminescence in Mercury Cadmium Telluride – a Historical Retrospective. Part I: 1966-1996

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Abstract. This work presents a historical retrospective on the studies of photoluminescence in mercury cadmium telluride (HgCdTe), one of the most important materials of infrared photoelectronics. The first part of the review considers the results of the studies performed during the early years of the development of the technology of this material (1966-1996). These studies were carried out mostly using samples of bulk crystals and epitaxial films grown by liquid-phase epitaxy. The results of the studies allowed for identification of the nature of optical transitions in HgCdTe, including excitonic emission, interband recombination, donor-acceptor pair recombination and recombination via shallow and deep levels, which greatly helped in maturing the material technology.

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