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HgCdTe avalanche photodiodes: A review
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Abstract
This paper presents a comprehensive review of fundamental issues, device architectures, technology development and applications of HgCdTe based avalanche photodiodes (APD). High gain, above 5 x 10(3), a low excess noise factor close to unity, THz gain-bandwidth product, and fast response in the range of pico-seconds has been achieved by electron-initiated avalanche multiplication for SWIR, MWIR, and LWIR detector applications involving low optical signals. Detector arrays with good element-to-element uniformity have been fabricated paving the way for fabrication of HgCdTe-APD FPAs. (C) 2011 Elsevier Ltd. All rights reserved.