

114. Title: Terahertz radiation due to random grating coupled surface plasmon polaritons

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Abstract: We report on terahertz (THz) radiation under electrical pumping from a degenerate semiconductor possessing an electron accumulation layer. In InN, the random grating formed by topographical defects provides high-efficiency coupling of surface plasmon polaritons, supported by the accumulation layer, to the THz emission. The principal emission band occupies the spectral range of 2-6 THz. We establish a link between the shape of emission spectra and the structural factor of the random grating and show that the change of slope of power dependencies is characteristic for temperature-dependent plasmonic mechanisms. The super-linear rise of a THz emission intensity on applied electric power provides the advantage of such materials in emission yield.