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Electrons in Large-Bandgap Bulk Semiconductors and Quantum Wells

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**Abstract:** The analytical theory of hot electrons interacting with lattice vibrations, impurities, and interface roughness in quantum wells is developed. We have obtained new distribution functions which describe all the kinetic properties of the non-equilibrium electron gas. As a specific example we present the electric field dependence of the electron mobility in GaN-based quantum wells and in bulk GaN. The relative importance of the different scattering mechanisms is analysed in detail.

 [Keywords](#)  
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