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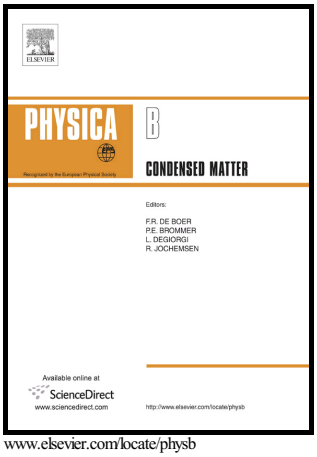

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Impacts of growth orientation and N incorporation on the interface-states and the electrical characteristics of Cu/GaAsN Schottky barrier diodes

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Abstract

The frequency dependent capacitance-voltage (C-V) and conductance-voltage (G/ω-V) characteristics of Schottky barrier diodes (SBDs) with Cu contacts on Si doped GaAsN epilayers with (100) and (311)A/B orientations have been investigated in the frequency range from 20KHz to 1MHz at room temperature. C, G/ω and the deduced series resistance (R_s) show strong dependences on the applied frequency in the forward bias region, which is closely correlated to the frequency-dependent response of interface states (N_{ss}). In GaAsN SBDs with all three growth orientations, the increasing N