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Title:Properties of In_xGa_{1-x}N films in terahertz range
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Abstract:In this letter, we report the characterization of the refractive indices and complex conductivities of a set of GaN films with different carrier concentrations, InN film, and In_xGa_{1-x}N films with indium content varying from x = 0.07 to x = 0.14 grown by metalorganic chemical vapor deposition for frequencies ranging from 0.3 to 3 THz using terahertz time-domain spectroscopy (THz-TDS). The refractive indices of In_xGa_{1-x}N films at THz range are reported. The carrier density and mobility determined using THz-TDS method show good agreement with four-probe Hall measurements.
Number of references:22
Inspec controlled terms:carrier density - carrier mobility - electrical conductivity - gallium compounds - III-V semiconductors - indium compounds - MOCVD - refractive index - semiconductor thin films - terahertz wave spectra - wide band gap semiconductors
Uncontrolled terms:four-probe Hall measurements - carrier mobility - carrier density - terahertz time-domain spectroscopy - metalorganic chemical vapor deposition - carrier concentrations - thin films - complex conductivities - refractive indices - frequency 0.3 THz to 3 THz - InN - In_xGa_{1-x}N
Inspec classification codes:A7360L Electrical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures) - A7865K Optical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures) - A7870G Microwave and radiofrequency interactions with condensed matter - A7220F Low-field transport and mobility; piezoresistance (semiconductors/insulators) - A6855 Thin film growth, structure, and epitaxy - A7820D Optical constants and parameters (condensed matter) - A8115H Chemical vapour deposition - A7280E Electrical conductivity of II-VI and III-V semiconductors - B2520D II-VI and III-V

semiconductors - B0520F Chemical vapour deposition
Numerical data indexing:frequency 3.0E+11 3.0E+12 Hz
Chemical indexing:InN/bin In/bin N/bin;InGaN/ss Ga/ss In/ss N/ss
Treatment:Experimental (EXP)
Discipline:Physics (A); Electrical/Electronic engineering (B)
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