Contents

Equilibrium Statistics of Carriers in Semiconductors
(Lecture Notes)
R. Enderlein

Semiconductor Growth Techniques
(Lecture Notes)
J. F. Walker

Stability and Metastability of Semiconductor Alloys
(Lecture Notes)
L. G. Ferreira, A. Zunger, S.H. Wei, and Z.W. Lu

Transmission Electron Microscopy of Semiconductor Materials and Devices
(Invited)
H. Oppolzer

The Status of Current Understanding of Atomic Ordering and Phase Separation in Ternary and Quaternary Epitaxial Layers of III-V Compounds
(Invited)
S. Mahajan

MBE Crystal Growth (Invited)
P. Basmaji

Heterojunction Band Offsets (Invited)
J. Tersoff

Magnetotunneling in Semiconductor Heterostructures (Invited)
C. Tejedor, P.A. Schulz, G. Platero, and L. Brey

Ab Initio Approaches to Superlattice Phonon Spectra (Invited)
E. Molinari

Metal-Semiconductor Interfaces (Invited)
W. Mönch
Ion Implantation in Gallium Arsenide (*Invited*)

*J. P. de Souza*

179

Hydrogen Passivation of Shallow Impurities in Semiconductors (*Invited*)

*M. Stavola*

201

Deep Levels in p-Type GaAs Grown by Vacuum Chemical Epitaxy

*M.A.A. Pudensi, M.A. Cotta, K.M.I. Landers, A.Camilo Jr., and M.M.G. de Carvalho*

220

X-Ray Reflectivity of Amorphous Multi Layers: Interface Modeling

*M.C.A. Fantini, P.V. Santos, I. Pereyra, and M.N.P. Carreno*

225

Transport Properties in Superlattices: The Stark Ladder Effect

*J.A. Freire and M.A. Davidovich*

231

Magneto Optical Studies of an Asymmetric Modulation Doped Multiple Quantum Well

*F. Plentz, F. Meseguer, J.S. Dehesa, N. Mestres, and E.A. Meneses*

237

Evidence of Miniband Dispersion in the Photomodulated Absorption Spectra of $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ Superlattices

*E. Ribeiro, C.V. Lopez, F. Cerdeira, P. Motisuke, M.A. Sacilotti, and A.P. Roth*

242

Selenium Delta Doped in Almost Single Monolayer Grown by Molecular Beam Epitaxy

*A.C. Notari, B.J. Schrappe, M. Minondo, P. Basmaji, M.S. Li, and O. Hipólito*

247

Type I - Type II Heterostructure Transition in the AlGaInAs/InP Interface

*C.B.P. Montes, P. Motisuke, J. Decobert, L. Horiuchi, and M.A. Sacilotti*

252

High Resolution X-Ray Diffraction in the Study of AlGaInAs Layers

*J.M. Sasaki, L.P. Cardoso, T.W. Ryan, J. Decobert, and M.A. Sacilotti*

257
High Resolution Renninger Scan Obtained on InGaAs/AlGaInAs/InP Layered Material with Synchrotron Radiation
J.M. Sasaki, L.P. Cardoso, C. Campos, K.J. Roberts, G.F. Clark, E. Pantos, J. Decobert, and M.A. Sacilotti 262

Temperature Dependence of the Schottky Barrier at Al: n-GaAs Interfaces
Prepared by MBE

Pressure and Composition Effects on the Gap Properties of Al_\text{x}Ga_{1-x}As
R.B. Capaz, B. Koiller, and J.P. von der Weid 272

Heavily Carbon-Doped GaAlAs Grown by Vacuum Chemical Epitaxy
M.M.G. de Carvalho, M.A. Cotta, C.L. Barreto, and K.M.I. Landers 277

Optical Absorption in Quantum Wells
A.M. Cohen and G.E. Marques 282

The Transient Decay of Persistent Photoconductivity in Al_\text{x}Ga_{1-x}As: Measurements and Simulations
L.V.A. Scalvi and J.F. Wager 287

Magneto-Excitons and Free Landau Level Transitions in Modulation Doped Quantum Wells

Interface Characterization of Thin InGaAs-InP Single Quantum Wells by Photoluminescence
P.C. Morais and H.M. Cox 297

The Effect of Growth Temperature on the Si_{As} Related, Photoluminescence Emission in Al_\text{x}Ga_{1-x}As
P.L. Souza, J.P. von der Weid, E.V.K. Rao, and F. Alexandre 302

Photomodulated Spectra of InGaAs High Electron Mobility Structures
A.A. Bernussi, R.C. Oliveira, M.A. Sacilotti, and P.Motisuke 307
Near-gap Photoluminescence of the Ga$_{1-x}$Al$_x$As:Si Cladding Layer of a Single Asymmetric Quantum Well

*W.M. Mendes, P.L. Souza, J.P. von der Weid, and I.F.L. Dias*

Preparation and Characterization of In$_x$Ga$_{1-x}$As/GaAs Samples Grown by Molecular Beam Epitaxy

*W.L.C. Lima, A. Notari, P. Basmaji, M.S. Li, O. Hipólito, and P. Motisuke*

Hydrostatic Pressure Effects on Si and Sn Doped GaAs

*R. Pintanel, L.M.R. Scolfaro, and J.R. Leite*

Band Structure and Surface Geometry of AlAs(110)

*A.C.A.S. Grossi, J.L.A. Alves, and A.C. Ferraz*

Bulk and Surface Magnetoplasmons Modes in n-i-p-i Superlattices

*E.L. Albuquerque, P. Fulco, G.A. Farias, M.M. Auto, and D.R. Tilley*

Optical Properties at Semiconductor Heterostructure Interfaces

*E.A.G. Costa, F. de Brito Mota, and A.F. da Silva*

Screening in Quasi-Two Dimensions

*A. B. Henriques*

Resonant Tunneling and Escape Time of Hot Carriers in Heterostructures

*L.M. Montes, M.A. Rodríguez, and J.L. Carrillo*

Minority Electron Velocity Overshoot in p-GaAs

*A.M. Alencar, F.A.S. Nobre, A.J.C. Sampaio, V.N. Freire, and J.A.P. da Costa*

On Non-Abrupt Heterojunctions

*V.N. Freire, M.M. Auto, and G.A. Farias*

The Effect of Ionized Impurities on the Absorption Coefficient for Shallow Donors in a Quantum Well

*P.D. Emmel and I.C. da Cunha Lima*

Time Dependent Luminescence Polarization of a GaAs Quantum Well

*E.A. de Andrada e Silva*
Temperature Dependence of the Built-In Electric Field in Deltadoping GaAs
R.P. Camata, L.M.R. Scolfaro, J.M.V. Martins, J.R. Leite, C.A.C. Mendonça,
E.A. Meneses, I.F.L. Dias, and J.C. Bezerra

Electronic Structure of \((\text{GaP})_n(\text{InP})_n\) and \((\text{GaAs})_n(\text{InAs})_n\) Superlattices with \(n \leq 7\)
S.K. de Figueiredo and A.C. Ferraz

A New ELS Study of the InSb(110) Surface
V.E. de Carvalho

AuZn Ohmic Contact to p-GaSb: Electrical and Structural Properties of the Interface
A.M. Oyama, R. de Oliveira, P.S. Pizani, J.C. Galzerani, L.P. Cardoso,
S.L. Morelhão, and R. Landers

Fabrication of DH GaInAsSb/GaAlAsSb Lasers Emitting at 2.2\(\mu m\) at Room Temperature
J.L.H. Perez, M.B. Morosini, A.C.F. da Silveira, and N.B. Patel

Photoreflectance Characterization of Epitaxial Layers of GaInAsSb
and GaAlAsSb Grown Lattice Matched to GaSb by LPE
J.L.H. Perez, M.B.Z. Morosini, and N.B. Patel

Low Resistance Ohmic Contacts to GaSb
A.A.G. Von Zuben, J.L.H. Perez, M.B.Z. Morosini, and N.B. Patel

LPE Growth of Low n-Doped GaAlSb Layers Using Sb Melts, for Use in Avalanche Photodiodes
M.B.Z. Morosini, J.L.H. Perez, and N.B. Patel

Investigation of Thermal Interdiffusion in InGaAs/GaAs Strained Quantum Wells by Zn Diffusion
M.T. Furtado, M.S.S. Loural, E.A. Sato, and M.A. Sacilotti

Photoluminescence of \(\text{In}_{1-x}\text{Ga}_x\text{As}_y\text{P}_{1-y}\) Layers Grown by LPE
M.T. Furtado, W. Carvalho Jr., J.R. Caumo, and W.J.C. Oliveira
Electronic Structure of Semiconductor Oxides. Case of InP, AlP and GaAs Oxides

S.J. Sferco, G. Allan, I. Lefebvre, M. Lannoo, E. Bergignat, and G. Hollinger 419

Bistability and Persistent Photoconductivity in InP

M.A.A. Pudensi, M.F. Ceolin, and J.L. Merz 424

Magnetoresistance at 77 K in Plastically Deformed InSb

M. Nagabhooshanam 429

Charge Carrier Time of Flight Measurements in CdTe Polycrystalline Films

R. R. Bon, J.M. Figueroa, F.S. Sinencio, G. González de la Cruz, and O.Z. Angel 434

Oxygenated Amorphous Cadmium Telluride Thin Films Grown by R. F. Sputtering


Doping Studies of ZnSe Grown by Molecular Beam Epitaxy

S.M. Shibli, T. Penna, M.C. Tamargo, and B.J. Skromme 444

Electrical Characterization of GaSb Alloys Using Organic-on-Inorganic Contact Barrier

F.C. Vicentin, J.L.H. Perez, M.B.Z. Morosini, and M.A.A. Pudensi 449

Characterization of Thin CdS and CdSe Films Grown by the Gradient Recrystallization and Growth Technique

R.S. González, J.M.G. Jiménez, and G.M. Montes 454

ESR Experiments in Pb$_{1-x}$RE$_x$Te (RE = Er, Dy)


Electronic Structure and Atomic Geometry of Ultrathin Layered ZnSe/Ge Superlattices

A.C. Ferraz 464
Deposition and Characterization of a-Ge:H Thin Films
A.R. Zanatta, C.F. de O. Graeff, and I. Chambouleyron 469

Hydrogen Diffusion in a-Ge:H Films
C.F. de O. Graeff, F.L. Freire Jr., and I. Chambouleyron 474

Photoinduced Absorption in Hydrogenated Amorphous Carbon
R.R. Koropecki and J.A. Sanjurjo 479

Photoluminescence Fatigue Effects in Hydrogenated Amorphous Diamond Like Carbon
C.M. Almiron, R.R. Koropecki, J.A. Sanjurjo, and F. Alvarez 484

Post-Damage Defect Dynamics at the SiO₂/Si Interface
E.F. da Silva Jr. 489

Optical Characterization of TiO₂ Films Prepared by Thermal Oxidation

Characterization of Implanted Silicon Surfaces Using Light Interference Microscopy
V.R. Dumke, L.F. Giles, and F.C. Serbena 499

Design and Construction of an Electron Gun for Cathodoluminescence Experiments
F. Fajardo, R. Koropecki, and F. Alvarez 504

On the Use of Photoacoustic and Photoconductivity Techniques for Investigating the Optical Properties of Semiconductors
J.C. de Souza, G.P. Guedes, F. de Brito Mota, B.L. Pepe, D.G.F. David,
J.B.V. Salles Filho, A.Ferreira da Silva, I.N. Bandeira, L.M.R. Scalfaro,
J.M.V. Martins, and J.R. Leite 509

Theoretical Investigation of Iron-Shallow Acceptor Impurity Pairs in Silicon
L.V.C. Assali and J.R. Leite 514

Absorption of Infrared Radiation By Donor-Pair and Donor-Triad Molecules in Sb-Doped Germanium
S. Canuto, A. Ferreira da Silva, F. de Brito Mota, and A. Fazzio 519
Alloy Broadening of Semiconductor Impurity Lines: Second-Neighbors Effects
C.L.C. Ochi and B. Koiller 523

Electronic Structure of Cd Impurity in Silicon
M.C.G. Passeggi, S.J. Sferco, and M.A. Caravaca 530

Polaron Gas in Heavily Doped Semiconductors
W.B. da Costa and N. Studart 535

Defect-Molecule Model Revisited: Structural Properties of $sp$ Impurities in
Semiconductors
T.M. Schmidt and A. Fazzio 540

Edge States as Intrinsic Defects in Organic Semiconductors
D.S. Galvao and M.J. Caldas 546

A Semi-Infinite Open Shell Calculation of the K-Si Interface
M. Matos, M. Pignataro, and M.A.M. Davidovich 551

Generalized Transport Coefficients in Relaxation Time Approximation
R. Kishore 556

Author Index 561