



CONTENTS

Contents	v
Preface	
G. Sarusi, A. Carbone, S. Gunapala and H.C. Liu	305
Organizing Committee	307
<i>QWIP physics and devices</i>	
Broadband and narrow band light coupling for QWIPs	
K.K. Choi, C.H. Lin, K.M. Leung, T. Tamir, J. Mao, D.C. Tsui and M. Jhabvala	309
Effect of finite pixel size on optical coupling in QWIPs	
A. De Rossi, E. Costard, N. Guerineau and S. Rommeluere	325
Overcoming absorption saturation with doping in p-type quantum well infrared photodetectors: modeling and experiment	
F. Szmulowicz, J. Ehret, K. Mahalingam, S. Hegde, J. Solomon, D.H. Tomich, G. Landis, G.J. Brown, T. Oogarah and H.C. Liu	331
Electron transfer based voltage tunable two-color quantum-well infrared photodetectors	
A. Majumdar, K.K. Choi, J.L. Reno, L.P. Rokhinson and D.C. Tsui	337
The effects of light–heavy hole transitions on the cutoff wavelengths of far infrared detectors	
A.G.U. Perera, S.G. Matsik, M.B.M. Rinzan, A. Weerasekara, M. Alevli, H.C. Liu, M. Buchanan, B. Zvonkov and V. Gavrilenko	347
Time-resolved electron transport studies on InGaAs/GaAs-QWIPs	
S. Steinkogler, H. Schneider, R. Rehm, M. Walther, P. Koidl, P. Grant, R. Dudek and H.C. Liu	355
Electric field redistribution under IR radiation in quantum well infrared photodetectors as deduced from current noise measurements at low temperature and bias	
A. Carbone, R. Introzzi and H.C. Liu	363
Four-band quantum well infrared photodetector array	
S.V. Bandara, S.D. Gunapala, J.K. Liu, S.B. Rafol, D.Z. Ting, J.M. Mumolo, R.W. Chuang, T.Q. Trinh, J.H. Liu, K.K. Choi, M. Jhabvala, J.M. Fastenau and W.K. Liu	369
GaAsN/AlAs/AlGaAs double barrier quantum wells grown by molecular beam epitaxy as an alternative to infrared absorption below 4 μm	
A. Guzmán, E. Luna, J. Miguel-Sánchez, E. Calleja and E. Muñoz	377
Modulation-doping in 3–5 μm GaAs/AlAs/AlGaAs double barrier quantum well infrared photodetectors: an alternative to achieve high photovoltaic performance and high temperature detection	
E. Luna, A. Guzmán, J.L. Sánchez-Rojas, E. Calleja and E. Muñoz	383
On the growth conditions of 3–5 μm well-doped AlGaAs/AlAs/GaAs infrared detectors and its relation to the photovoltaic effect studied by transmission electron microscopy	
E. Luna, A. Guzmán, A. Trampert, J.L. Sánchez-Rojas and E. Calleja	391
Study of period number effect in the superlattice infrared photodetector	
J.H. Lu, Y.Y. Yang, C.C. Chen, C.H. Kuan, H.T. Chen and S.C. Lee	399

Applications of quantum well infrared photodetectors

640 × 512 pixel narrow-band, four-band, and broad-band quantum well infrared photodetector focal plane arrays S.D. Gunapala, S.V. Bandara, J.K. Liu, S.B. Rafol, J.M. Mumolo, C.A. Shott, R. Jones, J. Woolaway II, J.M. Fastenau, A.K. Liu, M. Jhabvala and K.K. Choi	411
Detection of buried land mines using a dual-band LWIR/LWIR QWIP focal plane array A. Goldberg, P.N. Uppal and M. Winn	427
QWIP or other alternative for third generation infrared systems G. Sarusi	439
Development of a 4–15 μm infrared GaAs hyperspectral QWIP imager M. Jhabvala, S. Gunapala, D. Reuter, K.K. Choi, S. Bandara, J. Liu, A. La, S. Banks, J. Cho, T. Hwang, S. Tsay, D. Rafol, H. Huet, N. Chauvet and T. Huss	445
Single-pixel polarimeter: dielectric-gratings model and fabrication progress M. Serna	457

Theory of quantum well infrared photodetectors

Phonon-assisted normal incidence intersubband absorption in semiconductor quantum wells T. Apostolova, D. Huang and D.A. Cardimona	465
Quantum mechanical scattering investigation of the dark current in quantum well infrared photodetectors (QWIPs) N.E.I. Etteh and P. Harrison	473
Modeling the capture probability and enhancing the photoconductive gain in quantum well infrared photodetectors (QWIPs) M.A. Gadir, P. Harrison and R.A. Soref	481
Physics of non-adiabatic transport and field-domain effect in quantum-well infrared photodetectors D. Huang and D.A. Cardimona	487

Quantum dot infrared photodetectors

Detailed characterization of a systematic set of quantum dot infrared photodetectors H.C. Liu, B. Aslan, M. Korkusinski, S.-J. Cheng and P. Hawrylak	503
Photoconductive spectral analysis of InAs quantum dot under normal incidence S.E. Schacham, G. Bahir, E. Finkman, F.H. Julien, F. Fossard, J. Brault and M. Gendry	509
Photoconductivity of Ge/Si quantum dot photodetectors N. Rappaport, E. Finkman, P. Boucaud, S. Sauvage, T. Brunhes, V. Le Thanh, D. Bouchier and S.E. Schacham	513
High responsivity, LWIR dots-in-a-well quantum dot infrared photodetectors D.T. Le, C.P. Morath, H.E. Norton, D.A. Cardimona, S. Raghavan, P. Rotella, S.A. Stintz, B. Fuchs and S. Krishna	517
InAs/GaAs quantum dot infrared photodetectors with different growth temperatures S.Y. Wang, S.C. Chen, S.D. Lin, C.J. Lin and C.P. Lee	527
Author index to volume 44	533
Subject index to volume 44	543