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Editors: I.M. Pinto, V. Galdi, and L.B. Felsen
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A Tribute to Leopold B. Felsen
Editors: P. Russer and M. Mongiardo
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On the 10th Anniversary of SN1993J (IAU Colloquium 192)
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Editors: K. Dickmann, C. Fotakis, and J.F. Asmus
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Editors: J. Peinke, A. Kittel, S. Barth, and M. Oberlack
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Proceedings of the 4th International Workshop
Editor: U. Wittrock
- 103 **Computer Simulation Studies in Condensed-Matter Physics XVII**
Editors: D.P. Landau, S.P. Lewis, and H.-B. Schüttler
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Brain-like and Wave-oriented Electrodynamical Algorithms
Editors: I.C. Gökner and L. Sevgi
- 105 **Computer Simulation Studies in Condensed-Matter Physics XVIII**
Editors: D.P. Landau, S.P. Lewis, and H.-B. Schüttler
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Editors: W. Wu and H.S. Yu
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Proceedings of the 14th Conference, April 11–14, 2005, Oxford, UK
Editors: A.G. Cullis and J.L. Hutchison
- 108 **Hadron Collider Physics 2005**
Proceedings of the 1st Hadron Collider Physics Symposium, Les Diablerets, Switzerland, July 4–9, 2005
Editors: M. Campanelli, A. Clark, and X. Wu
- 109 **Progress in Turbulence 2**
Proceedings of the iTi Conference in Turbulence 2005
Editors: M. Oberlack et al.
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Proceedings of the 14th International Conference, July 25–29, 2005, Chicago, USA
Editors: M. Saraniti, U. Ravaioli
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Editors: E. Inan, A. Kiris
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Editor: T. Schanz
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Editor: Thorsten M. Burzug
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Editors: P.V. Nickles, K.A. Janulewicz
- 116 **Lasers in the Conservation of Artworks**
LACONA VI Proceedings, Vienna, Austria, September 21–25, 2005
Editors: J. Nimmrichter; W. Kautek; M. Schreiner
- 117 **Advances in Turbulence XI**
Proceedings of the 11th EUROMECH European Turbulence Conference, June 25–28, 2007, Porto, Portugal
Editors: J. M. L. M. Palma; A. Silva Lopes
- 118 **The Standard Model and Beyond**
Proceedings of the 2nd Int. Summer School in High Energy Physics, Mugla, 25–30 September 2006
Editors: T. Aliev; N.K. Pak; M. Serin
- 119 **Narrow Gap Semiconductors 2007**
Proceedings of the 13th International Conference, 8–12 July, 2007, Guildford, UK
Editors: B.N. Murdin; S.K. Clowes

B.N. Murdin S.K. Clowes
(Eds.)

Narrow Gap Semiconductors 2007

Proceedings of the
13th International Conference,
8–12 July, 2007, Guildford, UK

 Springer

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Preface

The Thirteenth International Conference on Narrow Gap Semiconductors (NGS13) was held in Surrey, UK, on July 8-12, 2007. We brought together researchers from 15 countries to discuss recent advances and discoveries in the science and technology of narrow gap semiconductors, following the traditions of the previous twelve conferences in this series – Dallas, USA (1970), Nice, France (1973), Warsaw, Poland (1977), Linz, Austria (1981), Gaithersburg, USA (1989), Southampton, UK (1992), Santa Fe, USA (1995), Shanghai, China (1997), Berlin, Germany (1999), Kanazawa, Japan (2001), Buffalo, USA (2003) and Toulouse, France (2005).

It was over 40 years ago, before we were born, that the first III-V semiconductors started to be crystallised in high quality, and the best materials available were the so called narrow gap materials. These materials were of fundamental interest at the time, and have continued to be so due to the strong effects of non-parabolicity and spin-orbit coupling, providing exciting tests of solid-state quantum mechanics. For applications they were overtaken in importance for microelectronics and optoelectronics by other wider gap materials, but they nevertheless became of great importance with the advent of mercury cadmium telluride mid-infrared detector applications. Recently narrow gap materials have had a resurgence in interest in a number of application areas. They can exhibit interesting spin-physics and have great potential for spintronic devices, thanks to strong coupling to the conduction band of the strongly spin-orbit split valence band. The growth of nanocrystals made from narrow gap materials has offered the possibility of cheaper near-infrared devices, in competition with wide gap structures. Graphene has emerged as a zero-gap semiconductor with special properties and exciting physics and applications. Finally, now, the InSb transistor has exhibited record performance characteristics and forms one of the possible strands of the information technology roadmap. Although these applications have given new impetus, there remains a strong fundamental physics interest in narrow gap semiconductors, and effects such as zitterbewegung are especially strong in these materials. All of the above topics were represented at the Thirteenth Conference, and the subject is as vibrant as ever.

It gives us great pleasure that some of the Fathers of this field were present at the Conference, and we are especially grateful to Professors Carl Pidgeon and Guenther Bauer, whose enormous enthusiasm made our job as Chairmen a great pleasure.

The social events provided an excellent setting for informal discussions. The Welcome Reception took place at the Advanced Technology Institute on the

campus of the University of Surrey. The Conference Excursion took the participants to the 16th century Hampton Court Palace; home to Cardinal Wolsey and King Henry VIII. The Conference Dinner was held at the award winning Denbies Wine Estate, the largest vineyard in England.

We would like to thank all members of the program and advisory committees for their individual contributions for the organization of the conference and for setting up the scientific program, and we want to thank all participants for attending the conference and for their valuable scientific presentations. Our special thanks must go to Steven Clowes, whose responsibilities included setting up and maintaining the program for manuscript and abstract submissions and paper distributions to referees. We must also thank Julie Maplethorpe for her unwavering support as conference secretary, who assisted in the organisation of all aspect of the event and ensuring we were all well looked after during the conference week. Without Steven and Julie, putting together this Conference Proceedings in such a short period of time would have been impossible.

Finally, we have the pleasure to announce that the next Conference, NGS14, will be held on 4-8 or 18-22 August 2009, at the Sendai International Center, Sendai, Japan, and will be chaired by Professor Junsaku Nitta and co-chaired by Professor Hiro Munekata.

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Conference Banquet – Denbies Wine Estate

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Department of Physics, University of Surrey

(<http://www.surrey.ac.uk/physics>)

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(<http://www.hlphys.jku.at>)

Conference Website - <http://www.ati.surrey.ac.uk/NGS13>

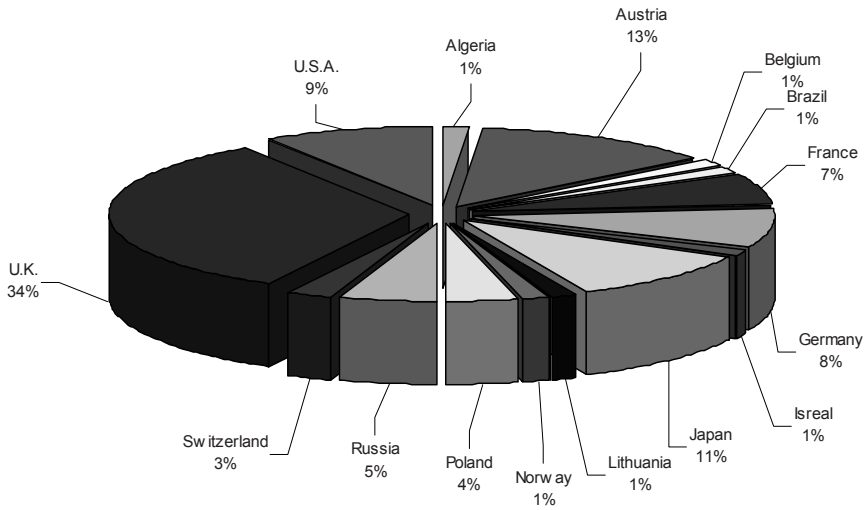
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The Conference in Figures

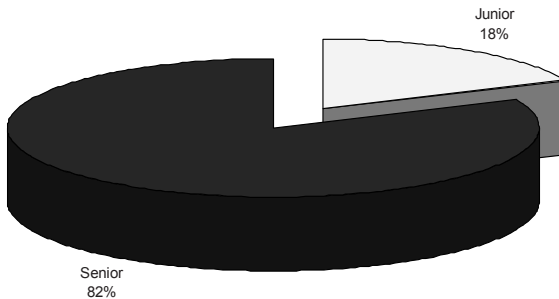
Attendance by country

Country	Algeria	Austria	Belgium	Brazil	France	Germany	Isreal	Japan	Lithuania
Number of participants	1	10	1	1	5	6	1	8	1

Country	Norway	Poland	Russia	Switzerland	U.K.	U.S.A.	TOTAL
Number of participants	1	3	4	2	25	7	76



Junior / senior distribution



Contents

Part I – Spin-Related Phenomena

Gate Dependence of Spin-Splitting in an InSb/InAlSb Quantum Well <i>W.R. Branford, A. M. Gilbertson, P. D. Buckle, L. Buckle, T. Ashley, F. Magnus, S.K. Clowes, J.J. Harris, and L. F. Cohen</i>	3
Photogalvanic Effects in HgTe Quantum Wells <i>B. Wittmann, S. N. Danilov, Z. D. Kwon, N. N. Mikhailov, S. A. Dvoretzky, R. Ravash, W. Prettl, and S. D. Ganichev</i>	7
Magnetic and Structural Properties of Ferromagnetic GeMnTe Layers <i>P. Dziawa, W. Knoff, V. Domukhovski, J. Domagala, R. Jakiela, E. Lusakowska, V. Osinniy, K. Swiatek, B. Taliashvili, and T. Story</i>	11
Control and probe of Carrier and Spin Relaxations in InSb Based Structures <i>G. A. Khodaparast, R. N. Kini, K. Nontapot, M. Frazier, E. C. Wade, J. J. Heremans, S. J. Chung, N. Goel, M. B. Santos, T. Wojtowicz, X. Liu, and J. K. Furdyna</i>	15
Density and Well-Width Dependence of the Spin Relaxation in n-InSb/AlInSb Quantum Wells <i>K. L. Litvinenko, B. N. Murdin, S. K. Clowes, L. Nikzad, J. Allam, C. R. Pidgeon, W. Branford, L. F. Cohen, T. Ashley, and L. Buckle</i>	19
Dependence of Layer Thickness on Magnetism and Electrical Conduction in Ferromagnetic (In,Mn)As/GaSb Heterostructures <i>H. Nose, S. Sugahara, and H. Munekata</i>	23
Temperature Dependence of the Electron Lande g-Factor in InSb <i>C.R. Pidgeon, K.L. Litvinenko, L. Nikzad, J. Allam, L.F. Cohen, T. Ashley, M. Emery, and B.N. Murdin</i>	27
Anomalous Spin Splitting of Electrons in InSb type-II Quantum Dots in an InAs Matrix <i>Ya.V. Terent'ev, O.G. Lyublinskaya, A.A. Toropov, B. Ya. Meltser, A.N. Semenov, and S.V. Ivanov</i>	31

Measurement of the Dresselhaus and Rashba Spin-Orbit Coupling Via Weak Anti-Localization in InSb Quantum Wells
A.R. Dedigama, D. Jayathilaka, S.H. Gunawardana, S.Q. Murphy, M. Edirisooriya, N. Goel, T.D. Mishima, and M.B. Santos 35

Part II – Growth, Fabrication, Characterisation and Theory

Picosecond Carrier Dynamics in Narrow-Gap Semiconductors Studied by Terahertz Radiation Pulses
R. Adomavičius, R. Šustavičiūtė, and A. Krotkus41

Band Structure of InSbN and GaSbN
A. Lindsay, A.D. Andreev, E. P. O’Reilly, and T. Ashley 45

Growth and Characterisation of Dilute Antimonide Nitride Materials for Long Wavelength Applications
S. D. Coomber, L. Buckle, P. H. Jefferson, D. Walker, T. D. Veal, C. F. McConville, T. Ashley49

Electron Interband Breakdown in a Kane Semiconductor With a Degenerate Hole Distribution
A. V. Dmitriev and A. B. Evlyukhin53

InMnAs Quantum Dots: a Raman Spectroscopy Analysis
A. D. Rodrigues, J. C. Galzerani, E. Marega Jr., L. N. Coelho, R. Magalhães-Paniago, and G. J. Salamo57

Conduction Band States in AlP/GaP Quantum Wells.
M. Goiran, M.P. Semtsiv, S. Dressler, W. T. Masselink, J. Galibert, G. Fedorov, D. Smirnov, V. V. Rylkov, and J. Léotin.....61

Growth of InAsSb Quantum Wells by Liquid Phase Epitaxy
M. Yin, A. Krier, and R. Jones65

Diode Lasers for Free Space Optical Communications Based on InAsSb/InAsSbP Grown by LPE
M. Yin, A. Krier, P.J. Carrington, R. Jones, and S. E. Krier69

Epitaxial Growth and Characterization of PbGeEuTe Layers
V. Osinniy, P. Dziawa, V. Domukhovski, K. Dybko, W. Knoff, T. Radzynski, A. Lusakowski, K. Swiatek, E. Lusakowska, B. Taliashvili, A. Boratynski, and T. Story73

Monte Carlo Simulation of Electron Transport in PbTe <i>V. Palankovski, M. Wagner, and W. Heiss</i>	77
L-Band-Related Interband Transition in InSb/GaSb Self-Assembled Quantum Dots <i>S. I. Rybchenko, R. Gupta, I. E. Itskevich, and S. K. Haywood</i>	81
Antimony Distribution in the InSb/InAs QD Heterostructures <i>A.N. Semenov, O.G. Lyublinskaya, B. Ya. Meltser, V.A. Solov'ev, L.V. Delendik, and S.V. Ivanov</i>	85
Transport Properties of InAs _{0.1} Sb _{0.9} Thin Films Sandwiched by Al _{0.1} In _{0.9} Sb Layers Grown on GaAs(100) Substrates by Molecular Beam Epitaxy <i>I. Shibusaki, H. Geka, and A. Okamoto</i>	89
Modelling of Photon Absorption and Carrier Dynamics in HgCdTe Under mid-IR Laser Irradiation	93
<i>A. S. Villanger, T. Brudevoll, and K. Stenersen</i>	
Monte Carlo Study of Transport Properties of InN <i>S. Vitanov and V. Palankovski</i>	97
New Type of Combined Resonance in p-PbTe <i>H. Yokoi, S. Takeyama, N. Miura, and G. Bauer</i>	101
Part III - Carbon Nanotubes and Graphene	
Theory of Third-Order Optical Susceptibility of Single-Wall Carbon Nanotubes With Account of Coulomb Interaction <i>D. Lobaskin and A. Andreev</i>	107
Unveiling the Magnetically Induced Field-Effect in Carbon Nanotubes Devices <i>G. Fedorov, A. Tselev, D. Jimenez, S. Latil, N. G. Kalugin, P. Barbara, D. Smirnov, and S. Roche</i>	111
Transient Zitterbewegung of Electrons in Graphene and Carbon Nanotubes <i>T. M. Rusin and W. Zawadzki</i>	115

Cross-Polarized Exciton Absorption in Semiconducting Carbon Nanotubes
S. Uryu and T. Ando 119

Part IV – Nanocrystals and Nanowires

Self-Assembled InSb/InAs Quantum Dots for the Mid-Infrared Spectral Range 3-4 μm
K. D. Moiseev, Ya. A. Parkhomenko, M. P. Mikhailova, S. S. Kizhaev, E. V. Ivanov, A. V. Ankudinov, A. N. Titkov, A. V. Boitsov, N. A. Bert, Yu. P. Yakovlev 125

InSb/InAs Nanostructures Grown by Molecular Beam Epitaxy Using Sb_2 and As_2 Fluxes
V. A. Solov'ev, P. Carrington, Q. Zhuang, K. T. Lai, S. K. Haywood, S. V. Ivanov, and A. Krier 129

Part V – Electronic Devices

Performance Evaluation of Conventional Sb-based Multiquantum Well Lasers Operating Above $3\mu\text{m}$ at Room Temperature
A. Kadri, K. Zitouni, Y. Rouillard, and P. Christol 135

Electroluminescence From Electrically Pumped GaSb-Based VCSELs
O. Dier, C. Lauer, A. Bachmann, T. Lim, K. Kashani, and M.-C. Amann.... 139

Wavelength Tunable Resonant Cavity Enhanced Photodetectors Based on Lead-Salts Grown by MBE
F. Felder, M. Arnold, C. Ebnetter, M. Rahim, and H. Zogg..... 143

Farfield Measurements of Y-Coupled Quantum Cascade Lasers
L. K. Hoffmann, C. A. Hurni, S. Schartner, M. Austerer, E. Mujagić, M. Nobile, A.M. Andrews, W. Schrenk, G. Strasser, M. P. Semtsiv, and W. T. Masselink 147

Impact of Doping Density in Short-Wavelength InP-Based Strain-Compensated Quantum-Cascade Lasers
E. Mujagić, M. Austerer, S. Schartner, M. Nobile, P. Klang, L. Hoffmann, W. Schrenk, I. Bayrakli, M. P. Semtsiv, W. T. Masselink, and G. Strasser 151

Magnetic Field Effects in InSb/Al _x In _{1-x} Sb Quantum-Well Light-Emitting Diodes <i>B. I. Mirza, G. R. Nash, S. J. Smith, M. K. Haigh, L. Buckle, M. T. Emeny, and T. Ashley</i>	155
Electroluminescence from InSb-Based Mid-Infrared Quantum Well Lasers <i>S. J. Smith, S. J. B. Przeslak, G. R. Nash, C. J. Storey, A. D. Andreev, A. Krier, M. Yin, S. D. Coomber, L. Buckle, M. T. Emeny, and T. Ashley</i>	159
InAs Quantum Hot Electron Transistor <i>T. Daoud, J. Devenson, A.N. Baranov, and R. Teissier</i>	163
Easy-to-Use Scalable Antennas for Coherent Detection of THz Radiation <i>S. Winnerl, F. Peter, S. Nitsche, A. Dreyhaupt, O. Drachenko, H. Schneider, and M. Helm</i>	167
Single Photon Detection in the Long Wave Infrared <i>T. Ueda, Z. An, K. Hirakawa, and S. Komiyama</i>	171
High-Performance Fabry-Perot and Distributed-Feedback Interband Cascade Lasers <i>C. L. Canedy, W. W. Bewley, M. Kim, C. S. Kim, J. A. Nolde, D. C. Larrabee, J. R. Lindle, I. Vurgaftman, and J. R. Meyer</i>	177
Mid-Infrared Lead-Salt VECSEL (Vertical External Cavity Surface Emitting Laser) for Spectroscopy <i>M. Rahim, M. Arnold, F. Felder, I. Zasavitskiy, and H. Zogg</i>	183
Optically Pumped GaSb-Based VECSELS <i>N. Schulz, M. Rattunde, B. Rösener, C. Manz, K. Köhler, and J. Wagner</i> ...	187
Part VI – Magneto-Transport and Magneto-Optics	
Cyclotron Resonance Photoconductivity of a Two-Dimensional Electron Gas in HgTe Quantum Wells <i>Z. D. Kvon, S. N. Danilov, N. N. Mikhailov, S. A. Dvoretzky, W. Prettl, and S. D. Ganichev</i>	195

Extrinsic Electrons and Carrier Accumulation in $\text{Al}_x\text{In}_{1-x}\text{Sb}/\text{InSb}$ Quantum Wells: Well-Width Dependence
A. Fujimoto, S. Ishida, T. Manago, H. Geka, A. Okamoto, and I. Shibusaki199

Negative and Positive Magnetoresistance in Variable-Range Hopping Regime of Undoped $\text{Al}_x\text{In}_{1-x}\text{Sb}/\text{InSb}$ Quantum Wells
S. Ishida, T. Manago, K. Oto, A. Fujimoto, H. Geka, A. Okamoto, and I. Shibusaki 203

Semimetal-Insulator Transition in Two-Dimensional System at the Type II Broken-Gap $\text{InAs}/\text{GaInAsSb}$ Single Heterointerface
K.D. Moiseev, M.P. Mikhailova, R.V. Parfeniev, J. Galibert, and J. Leotin209

Magnetoexcitons in Strained InSb Quantum Wells
W. Gempel, X. Pan, T. Kasturiarachchi, G. D. Sanders, M. Edirisooriya, T. D. Mishima, R. E. Doezema, C. J. Stanton, and M. B. Santos.....213