

## List of publications

### Original Journal Articles:

- A1 A. Wacker and E. Schöll: *Oscillatory instability in the heterostructure hot-electron diode*, Applied Physics Letters **59**, 1702–1704 (1991) DOI: 10.1063/1.106223
- A2 A. Wacker and E. Schöll: *Spatio-temporal dynamics of vertical charge transport in a semiconductor heterostructure*, Semiconductor Science and Technology **7**, 1456–1463 (1992) DOI: 10.1088/0268-1242/7/12/006
- A3 A. Wacker and E. Schöll: *Spiking in an Activator-Inhibitor Model for Elements with S-Shaped Negative Differential Conductivity*, Zeitschrift für Physik **B 93**, 431–436 (1994) DOI: 10.1007/BF01314246
- A4 A. Wacker: *Dynamical behavior in a quantum-dot structure*, Physical Review B **49**, 16785–16488 (1994) DOI: 10.1103/PhysRevB.49.16785
- A5 F. Prengel, A. Wacker, and E. Schöll: *Simple model for multistability and domain formation in semiconductor superlattices*, Physical Review B **50**, 1705–1712 (1994); erratum **52**, 11518 (1995) DOI: 10.1103/PhysRevB.50.1705
- A6 S. Bose, A. Wacker, and E. Schöll: *Bifurcation scenarios of spatio-temporal spiking in semiconductor devices*, Physics Letters **A 195**, 144–150 (1994) DOI: 10.1016/0375-9601(94)90087-6
- A7 J. Kastrup, H.T. Grahn, K. Ploog, F. Prengel, A. Wacker, and E. Schöll: *Multistability of the current-voltage characteristics in doped GaAs-AlAs superlattices*, Applied Physics Letters **65**, 1808–1810 (1994) DOI: 10.1063/1.112850
- A8 S.H. Kwok, H.T. Grahn, M. Ramsteiner, K. Ploog, F. Prengel, A. Wacker, E. Schöll, S. Murugkar, and R. Merlin: *Non-resonant carrier transport through high-field domains in semiconductor superlattices*, Physical Review B **51**, 9943–9951 (1995) DOI: 10.1103/PhysRevB.51.9943
- A9 A. Wacker, G. Schwarz, F. Prengel, E. Schöll, J. Kastrup, and H.T. Grahn: *Probing growth-related disorder by high-field transport in semiconductor superlattices*, Physical Review B **52**, 13788–13791 (1995) DOI: 10.1103/PhysRevB.52.13788
- A10 A. Wacker and E. Schöll: *Criteria for stability in bistable electrical devices with S- or Z-shaped current-voltage characteristics*, Journal of Applied Physics **78**, 7352–7357 (1995) DOI: 10.1063/1.360384
- A11 A. Wacker, S. Bose, and E. Schöll: *Transient spatio-temporal chaos in a reaction-diffusion model*, Europhysics Letters **31**, 257–262 (1995) DOI: 10.1209/0295-5075/31/5-6/002
- A12 G. Schwarz, A. Wacker, F. Prengel, E. Schöll, J. Kastrup, H.T. Grahn, and K. Ploog: *The influence of imperfections and weak disorder on domain formation superlattices*, Semiconductor Science and Technology **11**, 475–482 (1996) DOI: 10.1088/0268-1242/11/4/003
- A13 F.-J. Niedernostheide, H.-J. Schulze, S. Bose, A. Wacker, and E. Schöll: *Spiking in a semiconductor device: Experiments and comparison with a model*, Physical Review E **54**, 1253–1260 (1996).
- A14 R. Stasch, R. Hey, M. Asche, A. Wacker, and E. Schöll: *Temperature persistent bistability and threshold switching in a single barrier heterostructure hot-electron diode*, Journal of Applied Physics **80**, 3376–3380 (1996).
- A15 A. Wacker, M. Moscoso, M. Kindelan, and L.L. Bonilla: *Current-voltage characteristic and stability in resonant-tunneling n-doped semiconductor superlattices*, Physical Review B **55**, 2466–2475 (1997).
- A16 J. Kastrup, R. Hey, K.H. Ploog, H.T. Grahn, L.L. Bonilla, M. Kindelan, M. Moscoso, A. Wacker, and J. Galán: *Electrically tunable GHz oscillations in doped GaAs-AlAs superlattices*, Physical Review B **55**, 2476–2488 (1997).
- A17 A. Wacker, A.-P. Jauho, S. Zeuner, and S. J. Allen: *Sequential tunneling in doped superlattices: Fingerprints of impurity bands and photon-assisted tunneling*, Physical Review B **56**, 13268–13278 (1997).
- A18 A. Wacker and A.-P. Jauho: *Quantum transport: The link between standard approaches in superlattices*, Physical Review Letters **80**, 369–372 (1998).

- A19 A. Kristensen, P. E. Lindelof, C. B. Sørensen, and A. Wacker: *Resonant tunnelling in superlattices with a basis*, Semiconductor Science and Technology **13**, 910–914 (1998).
- A20 C. Rauch, G. Strasser, K. Unterrainer, W. Boxleitner, E. Gornik, and A. Wacker: *Transition between coherent and incoherent electron transport in GaAs/GaAlAs superlattices*, Physical Review Letters **81**, 3495–3498 (1998).
- A21 M. Helm, W. Hilber, G. Strasser, R. De Meester, F. M. Peeters, and A. Wacker: *Continuum Wannier-Stark ladders strongly coupled by Zener resonances in semiconductor superlattices*, Physical Review Letters **82**, 3120–3123 (1999).
- A22 A. Wacker, A.-P. Jauho, S. Rott, A. Markus, P. Binder, and G.H. Döhler: *Inelastic quantum transport in superlattices: success and failure of the Boltzmann equation*, Physical Review Letters **83**, 836–839 (1999) DOI: 10.1103/PhysRevLett.83.836
- A23 A. Wacker and B. Yu.-Kuang Hu: *Theory of Transmission through disordered superlattices*, Physical Review B **60**, 16039–16049 (1999).
- A24 G. Kießlich, A. Wacker, and E. Schöll: *Geometry effects at conductance quantization in quantum wires*, physica status solidi (b) **216**, R5–6 (1999).
- A25 M. Meixner, P. Rodin, E. Schöll, and A. Wacker: *Lateral current density fronts in globally coupled bistable semiconductors with S- or Z-shaped current voltage characteristics*, European Physical Journal B **13**, 157–168 (2000).
- A26 H. Steuer, A. Wacker, E. Schöll, M. Ellmauer, E. Schomburg, and K.F. Renk: *Thermal breakdown, bistability, and complex high-frequency current oscillations due to carrier heating in superlattices*, Applied Physics Letters **76**, 2059–2061 (2000).
- A27 A. Carpio, L.L. Bonilla, A. Wacker, and E. Schöll: *Wavefronts may move upstream in semiconductor superlattices*, Physical Review E **61**, 4866–4876 (2000).
- A28 R. Wetzler, A. Wacker, E. Schöll, C.M.A. Kapteyn, R. Heitz, and D. Bimberg: *Capacitance-voltage characteristics of InAs/GaAs quantum dots embedded in a pn structure*, Applied Physics Letters **77**, 1671–1674 (2000).
- A29 F. Elsholz, A. Wacker, E. Schöll, M. Kast, G. Strasser, and E. Gornik: *Magnetotransport through semiconductor superlattices*, Physical Review B **63**, 33312-1–4 (2001).
- A30 A. Amann, A. Wacker, L. L. Bonilla, and E. Schöll: *Dynamic scenarios of multi-stable switching in semiconductor superlattices*, Physical Review E **63**, 66207-1–8 (2001).
- A31 C. Pacher, C. Rauch, G. Strasser, E. Gornik, F. Elsholz, A. Wacker, G. Kießlich, and E. Schöll: *Antireflection coating for miniband transport and Fabry-Pérot resonances in GaAs/AlGaAs superlattices*, Applied Physics Letters **79**, 1486–1488 (2001).
- A32 A. Wacker: *Semiconductor Superlattices: A model system for nonlinear transport*, Physics Reports **357**, 1–111 (2002). DOI: 10.1016/S0370-1573(01)00029-1
- A33 E. Schomburg, K. Hofbeck, R. Scheuerer, M. Haeussler, K.F. Renk, A.-L. Jappsen, A. Amann, A. Wacker, E. Schöll, D.G. Pavel’ev, and Yu. Loschurinov: *Control of the dipole domain propagation in a GaAs/AlAs superlattice with a high-frequency field*, Physical Review B **65**, 155320-1–7 (2002).
- A34 A. Amann, J. Schlesner, A. Wacker, and E. Schöll: *Chaotic front dynamics in semiconductor superlattices*, Physical Review B **65**, 193313-1–4 (2002).
- A35 R. Scheuerer, E. Schomburg, K. F. Renk, A. Wacker, and E. Schöll: *Feasibility of a semiconductor superlattice oscillator based on quenched domains for the generation of sub-millimeter waves*, Applied Physics Letters **81**, 1515 (2002).
- A36 A. Wacker: *Gain in quantum cascade lasers and superlattices: A quantum transport theory*, Physical Review B **66**, 085326-1–7 (2002). DOI: 10.1103/PhysRevB.66.085326
- A37 A.-K. Jappsen, A. Amann, A. Wacker, E. Schomburg, and E. Schöll: *High-Frequency Impedance of Driven Superlattices*, Journal of Applied Physics **92**, 3137–3140 (2002). DOI: 10.1063/1.1501756
- A38 A. Rack, R. Wetzler, A. Wacker, and E. Schöll: *Dynamical bistability in quantum dot structures: The role of Auger processes*, Physical Review B **66**, 165429-1–4 (2002). DOI: 10.1103/PhysRevB.66.165429

- A39 S.-C. Lee and A. Wacker: *A nonequilibrium Green's function theory for transport and gain properties of quantum cascade structures*, Physical Review B **66**, 245314 -1–18 (2002).  
DOI: 10.1103/PhysRevB.66.245314
- A40 R. Wetzler, A. Wacker, E. Schöll: *Self-consistent Coulomb effects and charge distribution of quantum dot arrays*, Physical Review B **68**, 045323 -1–6 (2003). DOI: 10.1103/PhysRevB.68.045323
- A41 A. Amann, K. Peters, U. Parlitz, A. Wacker, and E. Schöll: *Hybrid model for chaotic front dynamics: From semiconductors to water tanks*, Physical Review Letters **91**, 066601-1–4 (2003).  
DOI: 10.1103/PhysRevLett.91.066601
- A42 G. Kiesslich, A. Wacker, and E. Schöll: *Shot noise of coupled semiconductor quantum dots*, Physical Review B **68**, 125320-1–8 (2003). DOI: 10.1103/PhysRevB.68.125320
- A43 S.-C. Lee and A. Wacker: *Theoretical analysis of spectral gain in a THz quantum cascade laser: prospects for gain at 1 THz*, Applied Physics Letters **83**, 2506–2508 (2003). DOI: 10.1063/1.1614440
- A44 G. Kiesslich, A. Wacker, E. Schöll, S.A. Vitusevich, A.E. Belyaev, S.V. Danylyuk, A. Förster, N. Klein, and M. Henini: *Nonlinear Charging Effect of Quantum Dots in a p-i-n Diode*, Physical Review B **68**, 125331-1–6 (2003). DOI: 10.1103/PhysRevB.68.125331
- A45 H. Sprekeler, G. Kießlich, A. Wacker, and E. Schöll: *Coulomb Effects in Tunneling through a Quantum Dot Stack*, Physical Review B **69**, 125328-1–6 (2004). DOI: 10.1103/PhysRevB.69.125328
- A46 M.F. Pereira Jr., S.-C. Lee, and A. Wacker: *Controlling many-body effects in the midinfrared gain and terahertz absorption of quantum cascade laser structures*, Physical Review B **69**, 205310-1–7 (2004).  
DOI: 10.1103/PhysRevB.69.205310
- A47 R. Wetzler, A. Wacker, and E. Schöll: *Coulomb scattering with remote continuum states in quantum dot devices*, Journal of Applied Physics **95**, 7966–7970 (2004). DOI: 10.1063/1.1739284
- A48 R. Wetzler, R. Kunert, A. Wacker, and E. Schöll: *Inhomogeneous charging and screening effects in semiconductor quantum dot arrays*, New Journal of Physics **6**, 81-1–12 (2004).  
DOI: 10.1088/1367-2630/6/1/081
- A49 F. Banit, S.-C. Lee, A. Knorr, and A. Wacker: *Self-Consistent Theory of the Gain Linewidth of Quantum Cascade Lasers*, Applied Physics Letters **86**, 41108-1–3 (2005) DOI: 10.1063/1.1851004
- A50 J. N. Pedersen and A. Wacker: *Tunneling through nanosystems: Combining broadening with many-particle states*, Physical Review B **72**, 195330-1–9 (2005) DOI: 10.1103/PhysRevB.72.195330
- A51 G. Kießlich, P. Samuelsson, A. Wacker, and E. Schöll: *Counting statistics and decoherence in coupled quantum dots*, Physical Review B **73**, 033312-1–4 (2006) DOI: 10.1103/PhysRevB.73.033312
- A52 C. Gnodtke, G. Kiesslich, E. Schöll, and A. Wacker: *Phonon-assisted tunneling through quantum dot stacks*, Physical Review B **73**, 115338-1–7 (2006) DOI: 10.1103/PhysRevB.73.115338
- A53 S.-C. Lee, F. Banit, M. Woerner, and A. Wacker: *Quantum mechanical wavepacket transport in quantum cascade laser structures*, Physical Review B **73**, 245320-1–6 (2006) DOI: 10.1103/PhysRevB.73.245320
- A54 C. Weber, F. Banit, S. Butscher, A. Knorr, and A. Wacker: *Theory of the ultrafast nonlinear response of terahertz quantum cascade laser structures*, Applied Physics Letters **89**, 091112-1–3 (2006)  
DOI: 10.1063/1.2344844
- A55 A. Fuhrer, L.E. Fröberg, J.N. Pedersen, M.W. Larson, A. Wacker, M.-E. Pistol, and L. Samuelson: *Few electron double quantum dots in InAs/InP nanowire heterostructures*, Nano Letters **7**, 243–246 (2007)  
DOI: 10.1021/nl061913f
- A56 A. Wacker: *Lasers: Coexistence of gain and absorption (News & Views)*, Nature Physics **3**, 298–299 (2007)  
DOI: 10.1038/nphys603
- A57 J.N. Pedersen, B. Lassen, A. Wacker, and M.H. Hettler: *Coherent transport through an interacting double quantum dot: Beyond sequential tunneling*, Physical Review B **75**, 235314-1–10 (2007)  
DOI: 10.1103/PhysRevB.75.235314
- A58 B. Lassen and A. Wacker: *Electron Transport through Nanosystems Driven by Coulomb Scattering*, Physical Review B **76**, 075316-1–5 (2007) DOI: 10.1103/PhysRevB.76.075316

- A59 G. Lindwall, A. Wacker, C. Weber, and A. Knorr: *Zero-phonon linewidth and phonon satellites in the optical absorption of nanowire-based quantum dots*, Physical Review Letters **99**, 087401-1-4 (2007) DOI: 10.1103/PhysRevLett.99.087401
- A60 R. Nelander, A. Wacker, M.F. Pereira, D.G. Revin, M.R. Soulby, L.R. Wilson, J.W. Cockburn, A.B. Krysa, J.S. Roberts, and R.J. Airey: *Fingerprints of spatial charge transfer in quantum cascade lasers*, Journal of Applied Physics **102**, 113104-1-5 (2007) DOI: 10.1063/1.2817471
- A61 R. Nelander, A. Wacker: *Temperature dependence of the gain profile for THz quantum cascade lasers*, Applied Physics Letters **92**, 081102-1-3 (2008) DOI: 10.1063/1.2884686
- A62 S. Roddaro, K. Nilsson, G. Astromskas, L. Samuelson, L.-E. Wernersson, O. Karlström, and A. Wacker: *InAs nanowire metal-oxide-semiconductor capacitors*, Applied Physics Letters **92**, 253509-1-3 (2008) DOI: 10.1063/1.2949080
- A63 O. Karlström, A. Wacker, K. Nilsson, G. Astromskas, S. Roddaro, L. Samuelson, and L.-E. Wernersson: *Analyzing capacitance-voltage measurements of vertical wrapped-gated nanowires*, Nanotechnology **19**, 435201-1-6 (2008) DOI: 10.1088/0957-4484/19/43/435201
- A64 J.N. Pedersen, D. Bohr, A. Wacker, T. Novotný, P. Schmitteckert, and K. Flensberg: *Interplay between interference and Coulomb interaction in the ferromagnetic Anderson model with applied magnetic field*, Physical Review B **79**, 125403-1-12 (2009) DOI: 10.1103/PhysRevB.79.125403
- A65 C. Weber, A. Wacker, and A. Knorr: *Density-matrix theory of the optical dynamics and transport in quantum cascade structures: The role of coherence*, Physical Review B, **79**, 165322-1-14 (2009) DOI: 10.1103/PhysRevB.79.165322
- A66 R. Nelander and A. Wacker: *Temperature Dependence and Screening Models in Quantum Cascade Structures*, Journal of Applied Physics **106**, 63115-1-6 (2009) DOI: 10.1063/1.3226072
- A67 C. Weber, A. Fuhrer, C. Fasth, G. Lindwall, L. Samuelson, and A. Wacker: *Probing Confined Phonon Modes by Transport through a Nanowire Double Quantum Dot*, Physical Review Letters, **104**, 036801-1-4 (2010) DOI: 10.1103/PhysRevLett.104.036801
- A68 H. A. Nilsson, O. Karlström, M. Larsson, P. Caroff, J. N. Pedersen, L. Samuelson, A. Wacker, L.-E. Wernersson, and H. Q. Xu: *Correlation-induced conductance suppression at level degeneracy in a quantum dot*, Physical Review Letters, **104**, 186804-1-4 (2010) DOI: 10.1103/PhysRevLett.104.186804
- A69 A. Wacker: *Extraction-controlled quantum cascade lasers*, Applied Physics Letters **97**, 081105-1-3 (2010) DOI: 10.1063/1.3483764
- A70 L. H. Kristinsdottir, J. C. Cremon, H. A. Nilsson, H. Q. Xu, L. Samuelson, H. Linke, A. Wacker, and S. M. Reimann: *Signatures of Wigner Crystallization in Epitaxially Grown Nanowires*, Physical Review B **83**, 041101(R)-1-4 (2011), selected as editors suggestion DOI: 10.1103/PhysRevB.83.041101
- A71 O. Karlström, J.N. Pedersen, P. Samuelsson, and A. Wacker: *Canyon of current suppression in an interacting two-level quantum dot*, Physical Review B **83**, 205412-1-4 (2011) DOI: 10.1103/PhysRevB.83.205412
- A72 H. M. Ayedh and A. Wacker: *Acoustic phonons in nanowires with embedded heterostructures*, Journal of Nanomaterials **2011**, 743846-1-7 (2011) DOI: 10.1155/2011/743846
- A73 O. Karlström, H. Linke, G. Karlström, and A. Wacker: *Increasing thermoelectric performance using coherent transport*, Physical Review B **84**, 113415-1-4 (2011) DOI: 10.1103/PhysRevB.84.113415
- A74 A. Wacker, G. Bastard, F. Carosella, R. Ferreira, and E. Dupont: *Unraveling of free-carrier absorption for terahertz radiation in heterostructures*, Physical Review B **84**, 205319-1-6 (2011) DOI: 10.1103/PhysRevB.84.205319
- A75 F. Carosella, C. Ndebeka-Bandou, R. Ferreira, E. Dupont, K. Unterrainer, G. Strasser, A. Wacker, and G. Bastard: *Free carrier absorption in quantum cascade structures* Physical Review B **85**, 085310-1-9 (2012) DOI: 10.1103/PhysRevB.85.085310
- A76 E. Dupont, S. Fatholouloumi, Z.R. Wasilewski, G. Aers, S. R. Laframboise, M. Lindskog, A. Wacker, D. Ban, H. C. Liu: *A phonon scattering assisted injection and extraction based terahertz quantum cascade laser*, Journal of Applied Physics **111**, 73111-1-10 (2012) DOI: 10.1063/1.3702571

- A77 C. Ndebeka-Bandou, F. Carosella, R. Ferreira, A. Wacker, and G. Bastard: *Relevance of intra- and inter-subband scattering on the absorption in heterostructures*, Applied Physics Letters **101**, 191104 (2012) DOI: 10.1063/1.4766192
- A78 J. Matthews, E. A. Hoffmann, C. Weber, A. Wacker, and H. Linke: *Heat flow in InAs/InP heterostructure nanowires*, Physical Review B **86**, 174302 (2012) DOI: 10.1103/PhysRevB.86.174302
- A79 D. O. Winge, M. Lindskog, and A. Wacker: *Nonlinear response of quantum cascade structures*, Applied Physics Letters **101**, 211113 (2012) DOI: 10.1063/1.4767373
- A80 O. Karlström, C. Emary, P. Zedler, J.N. Pedersen, C. Bergenfeldt, P. Samuelsson, T. Brandes and A. Wacker: *A diagrammatic description of the equations of motion, current and noise within the second-order von Neumann approach*, Journal of Physics A **46**, 065301 (2013) DOI: 10.1088/1751-8113/46/6/065301
- A81 L.H. Kristinsdóttir, O. Karlström, J. Bjerlin, J.C. Cremon, P. Schlagheck, A. Wacker, and S.M. Reimann: *Total Current Blockade in an Ultra-Cold Dipolar Quantum Wire*, Physical Review Letters **110**, 085303 (2013) DOI: 10.1103/PhysRevLett.110.085303
- A82 A. Wacker, M. Lindskog, and D.O. Winge: *Nonequilibrium Green's Function Model for Simulation of Quantum Cascade Laser Devices under Operating Conditions*, IEEE Journal of Selected Topics in Quantum Electronics **19**, 1200611 (2013) DOI: 10.1109/JSTQE.2013.2239613
- A83 S.G. Razavipour, E. Dupont, S. Fatholouloumi, C.W.I. Chan, M. Lindskog, Z.R. Wasilewski, G. Aers, S.R. Laframboise, A. Wacker, Q. Hu, D. Ban, and H.C. Liu: *An indirectly pumped terahertz quantum cascade laser with low injection coupling strength operating above 150K*, Journal of Applied Physics **113**, 203107 (2013) DOI: 10.1063/1.4807580
- A84 C. Ndebeka-Bandou, A. Wacker, F. Carosella, R. Ferreira, and G. Bastard: *Dopant engineering of inter-subband linewidth and lineshape in multi-well heterostructures*, Applied Physics Express **6**, 094101 (2013) DOI: 10.7567/APEX.6.094101
- A85 C. Ndebeka-Bandou, F. Carosella, R. Ferreira, A. Wacker, and G. Bastard: *Free carrier absorption and inter-subband transitions in imperfect heterostructures*, Semiconductor Science and Technology **29**, 023001 (2014), invited review DOI: 10.1088/0268-1242/29/2/023001
- A86 F. Carosella, A. Wacker, R. Ferreira, and G. Bastard: *One-dimensional massless Dirac bands in semiconductor superlattices*, Physical Review B **89**, 235301 (2014) DOI: 10.1103/PhysRevB.89.235301
- A87 D.O. Winge, M. Lindskog, and A. Wacker: *Microscopic approach to second harmonic generation in quantum cascade lasers*, Optics Express **22**, 18389 (2014) DOI: 10.1364/OE.22.018389
- A88 L.H. Kristinsdóttir, J. Bengtsson, H. Linke, S. M. Reimann, and A. Wacker: *Thermopower as a tool to investigate many-body effects in quantum systems*, Applied Physics Letters **105**, 083105 (2014) DOI: 10.1063/1.4893928
- A89 M. Lindskog, J.M. Wolf, V. Trinité, V. Liverini, J. Faist, G. Maisons, M. Carras, R. Aidam, R. Ostendorf, and A. Wacker: *Comparative analysis of quantum cascade laser modeling based on density matrices and non-equilibrium Green's functions*, Applied Physics Letters **105**, 103106 (2014) DOI: 10.1063/1.4895123
- A90 M. Franckíé, D.O. Winge, J. Wolf, V. Liverini, E. Dupont, V. Trinité, J. Faist, and A. Wacker: *Impact of interface roughness distributions on the operation of quantum cascade lasers*, Optics Express **23**, 52015212 (2015) DOI: 10.1364/OE.23.005201
- A91 K.A. Krivas, D.O. Winge, M. Franckíé and A. Wacker: *Influence of interface roughness in quantum cascade lasers*, Journal of Applied Physics **118**, 114501 (2015) DOI: 10.1063/1.4930572
- A92 B. Goldozian, F.A. Dامتie, G. Kiršanskas, and A. Wacker: *Transport in serial spinful multiple-dot systems: The role of electron-electron interactions and coherences*, Scientific Reports **6**, 22761 (2016) DOI: 10.1038/srep22761
- A93 D.O. Winge, M. Franckíé, and A. Wacker: *Superlattice gain in positive differential conductivity region*, AIP Advances **6**, 045025 (2016) DOI: 10.1063/1.4948538
- A94 G. Kiršanskas, S. Hammarberg, O. Karlström, and A. Wacker: *Thermopower signatures and spectroscopy of the canyon of conductance suppression*, Physical Review B **94**, 045427 (2016) DOI: 10.1103/PhysRevB.94.045427

- A95 F.A. Dantie, K.J. Karki, T. Pullerits, and A. Wacker: *Optimization Schemes for Efficient Multiple Exciton Generation and Extraction in Colloidal Quantum Dots*, The Journal of Chemical Physics **145**, 064703 (2016), DOI: 10.1063/1.4960507
- A96 H. Karbaschi, J. Lovén, K. Courteaut, A. Wacker, and M. Leijnse: *Nonlinear thermoelectric efficiency of superlattice-structured nanowires*, Physical Review B **94**, 115414 (2016) DOI: 10.1103/PhysRevB.94.115414
- A97 D.O. Winge, M. Franckié, and A. Wacker: *Simulating terahertz quantum cascade lasers: Trends from samples from different labs*, Journal of Applied Physics **120**, 114302 (2016) DOI: 10.1063/1.4962646
- A98 K. Seja, G. Kiršanskas, C. Timm, and A. Wacker: *Violation of Onsager's theorem in approximate master equation approaches*, Physical Review B **94**, 165435 (2016) DOI: 10.1103/PhysRevB.94.165435
- A99 M.F. Pereira, J.P. Zubelli, D. Winge, A. Wacker, A.S. Rodrigues, V. Anfertev, and V. Vaks: *Theory and measurements of harmonic generation in semiconductor superlattices with applications in the 100 GHz to 1 THz range*, Physical Review B **96**, 045306 (2017) DOI: 10.1103/PhysRevB.96.045306
- A100 G. Kiršanskas, J.N. Pedersen, O. Karlström, M. Leijnse, and A. Wacker: *QmeQ 1.0: An open-source Python package for calculations of transport through quantum dot devices*, Computer Physics Communications **221**, 317 (2017) DOI: 10.1016/j.cpc.2017.07.024
- A101 F.A. Dantie, A. Wacker, T. Pullerits, and K.J. Karki: *Two-dimensional action spectroscopy of excitonic systems: Explicit simulation using a phase-modulation technique*, Physical Review A **96**, 053830 (2017) DOI: 10.1103/PhysRevA.96.053830
- A102 M. Franckié, L. Bosco, M. Beck, C. Bonzon, E. Mavrona, G. Scalari, A. Wacker, and J. Faist: *Two-well quantum cascade laser optimization by non-equilibrium Green's function modelling*, Applied Physics Letters **112**, 021104 (2018) DOI: 10.1063/1.5004640
- A103 G. Kiršanskas, M. Franckié, and A. Wacker: *Phenomenological position and energy resolving Lindblad approach to quantum kinetics*, Physical Review B **97**, 035432 (2018) DOI: 10.1103/PhysRevB.97.035432

## **Book Chapters:**

B2, B3, and B6 are not present in Web of Science and Researcher ID

- B1 E. Schöll and A. Wacker: *Oscillatory Transport Instabilities and Complex Spatio-Temporal Dynamics in Semiconductors*, pp. 21–45 in *Nonlinear Dynamics and Pattern Formation in Semiconductors and Devices*, edited by F.-J. Niedernostheide (Springer, Berlin, 1995). **DOI:** 10.1007/978-3-642-79506-0\_2
- B2 A. Wacker: *Vertical transport and domain formation in multiple quantum wells*, Chapter 10 in *Theory of Transport Properties of Semiconductor Nanostructures*, edited by Eckehard Schöll (Chapman and Hall, London, 1998). **DOI:** 10.1007/978-1-4615-5807-1\_10
- B3 A.-P. Jauho, A. Wacker, and A.A. Ignatov: *Transport in semiconductor superlattices: From quantum kinetics to terahertz-photon detectors*, pp 171 – 192 in *Statistical and Dynamical Aspects of Mesoscopic Systems*, edited by D. Reguera, G. Platero, L.L. Bonilla, and J.M. Rubi, Lecture Notes in Physics, Vol. 547 (Springer, Berlin 2000). **DOI:** 10.1007/3-540-45557-4\_14
- B4 A. Wacker: *Transport in nanostructures: A comparison between nonequilibrium Green functions and density matrices*, pp 199 - 210 in *Advances in Solid State Physics Vol. 41*, edited by B. Kramer (Springer, Berlin 2001) **DOI:** 10.1007/3-540-44946-9\_17
- B5 A. Wacker, S.-C. Lee, and M.F. Pereira Jr.: *Simulation of Transport and Gain in Quantum Cascade Lasers* in *Advances in Solid State Physics Vol. 43*, pp 369-380 edited by B. Kramer (Springer, Berlin 2003) **DOI:**10.1007/978-3-540-44838-9\_26
- B6 A. Wacker: *Nanotechnologie: Quantenphysik als Werkzeug* in Jahrbuch 2004 der Berliner Wissenschaftlichen Gesellschaft, pp. 267-272, edited by B. Sösemann (Berliner Wissenschafts-Verlag, Berlin, 2005).
- B7 G. Kießlich, A. Wacker, and E. Schöll: *Theory of Nonlinear Transport for Ensembles of Quantum Dots*, Chapter 10 in *Semiconductor Nanostructures*, edited by D. Bimberg (Springer, Berlin, 2008) **DOI:**10.1007/978-3-540-77899-8\_10
- B8 A. Wacker: *Quantum Cascade Laser: An Emerging Technology*, in *Nonlinear Laser Dynamics* edited by Kathy Lüdge (Wiley-VCH, Berlin, 2012) **DOI:** 10.1002/9783527639823.ch4

## Proceeding-type articles(mostly refereed)

C4 and C6 are not present in Web of Science and Researcher ID

- C1 R. Schmolke, A. Wacker, V. Dohm, and D. Frank: *Specific heat and superfluid density of confined  $^4\text{He}$  near  $T_\lambda$* , Proceedings of 19<sup>th</sup> International Conference on Low Temperature Physics, 1990, Physica B **165&166**, 575 (1990). DOI: 10.1016/S0921-4526(90)81137-D
- C2 A. Wacker and V. Dohm: *Finite-size scaling of the specific heat of  $^4\text{He}$  near  $T_\lambda$* , Proceedings of 20<sup>th</sup> International Conference on Low Temperature Physics, 1993, Physica B **194-196**, 611 (1994).
- C3 A. Wacker and E. Schöll: *Spiking at Vertical Electrical Transport in a Heterostructure Device*, Proceedings of HCIS-8, 1993, Semiconductor Science and Technology **9**, 592 (1994).
- C4 A. Wacker and E. Schöll: *General conditions for stability in bistable electrical devices with S- or Z-shaped current-voltage characteristics*, page 489-492 in *Quantum Transport in Ultrasmall Devices*, NATO Advanced Study Institute, Il Ciocco 1994, edited by D.K. Ferry, C. Jacoboni, A.P. Jauho, and H.L. Grubin (Plenum Press, New York, 1995). DOI:10.1007/978-1-4615-1967-6\_34
- C5 E. Schöll, G. Schwarz, M. Patra, F. Prengel, and A. Wacker: *Oscillatory instabilities and field domain formation in imperfect superlattices*, in *Proceedings of the 9<sup>th</sup> International Conference on Hot Carriers in Semiconductors* edited by K. Hess, J.P. Leburton, and U. Ravaioli, pages177-181 (Plenum Press, New York, 1996). DOI: 10.1007/978-1-4613-0401-2\_42
- C6 F. Prengel, A. Wacker, G. Schwarz, E. Schöll, J. Kastrup, and H.T. Grahn: *Dynamics of domain formation in semiconductor superlattices*, in *Proc. 9th Symposium on Ultrafast Phenomena in Semiconductors*, Lithuanian Journal of Physics **35**, No. 5-6, 404-406 (1995).
- C7 A. Wacker and A.-P. Jauho: *Microscopic modelling of perpendicular electronic transport in doped multiple quantum wells*, Proceedings of the 17<sup>th</sup> Nordic semiconductor meeting, 1996, Physica Scripta **T69**, 321 (1997).
- C8 A. Wacker and A.-P. Jauho: *Transport in a weakly-coupled superlattice: A quantitative approach for photon-assisted tunneling*, Proceedings of HCIS-10, 1997, physica status solidi b **204**, 73 (1997).
- C9 A. Wacker, S. J. Allen, J. S. Scott, M. C. Wanke, and A.-P. Jauho: *Possible THz gain in superlattices at a stable operation point*, Proceedings of HCIS-10, 1997, physica status solidi b **204**, 95 (1997).
- C10 A. Wacker and A.-P. Jauho: *Impact of interface roughness on perpendicular transport and domain formation in superlattices*, Proceedings of ICSMM-9, 1996, Superlattices and Microstructures **23**, 297 (1998).
- C11 A. Wacker and A.-P. Jauho: *Strong impact of impurity bands on domain formation in superlattices*, Proceedings of MSS-8, 1997, Physica E **2**, 493 (1998).
- C12 E. Schöll, G. Schwarz, and A. Wacker: *Nonlinear and oscillatory electronic transport in superlattices as a probe of structural imperfections*, Proceedings of EP2DS, 1997, Physica B **249-251**, 961-965 (1998).
- C13 A. Wacker, S. Bose, C. Rauch, G. Strasser, and E. Gornik: *Transmission through superlattices with interface roughness*, Proceedings of ICSSM-11, 1998, Superlattices and Microstructures **25**, 43 (1999).
- C14 A. Wacker, A.-P. Jauho, S. Rott, A. Markus, P. Binder, and G.H. Döhler: *Hot Electrons in Superlattices: Quantum transport versus Boltzmann equation*, Proceedings of HCIS-11, 1999, Physica B **272**, 157 (1999).
- C15 C. Rauch, G. Strasser, K. Unterrainer, A. Wacker, and E. Gornik: *Scattering and Bloch oscillations in semiconductor superlattices*, Proceedings of HCIS-11, 1999, Physica B **272**, 175 (1999).
- C16 H. Steuer, A. Wacker, and E. Schöll: *Complex behavior due to electron heating in superlattices exhibiting high-frequency current oscillations*, Proceedings of HCIS-11, 1999, Physica B **272**, 202 (1999).
- C17 M. Helm, W. Hilber, G. Strasser, R. De Meester, F. M. Peeters, and A. Wacker: *Simultaneous investigation of vertical transport and intersubband absorption in a superlattice: Continuum Wannier-Stark ladders and next-nearest neighbor tunneling*, Proceedings of HCIS-11, 1999, Physica B **272**, 194 (1999).
- C18 M. Helm, W. Hilber, G. Strasser, R. De Meester, F.M. Peeters, A. Wacker: *Interminiband spectroscopy of biased superlattices*, Physica E **7**, 274-278 (2000)  
DOI: 10.1016/S1386-9477(99)00275-1



- C19 R. Wetzler, C.M.A. Kapteyn, R. Heitz, A. Wacker, E. Schöll and D. Bimberg: *Capacitance-voltage spectroscopy of self-organized InAs/GaAs quantum dots embedded in a pn diode*, Proceedings of the International Conference on Semiconductor Quantum Dots (München 2000), Physica Status Solidi (b) **224**, 79–83 (2001). DOI: 10.1002/1521-3951(200103)224:1;79::AID-PSSB79;3.0.CO;2-B
- C20 F. Eickemeyer, K. Reimann, M. Wörner, T. Elsaesser, S.-C. Lee, A. Wacker, S. Barbieri, C. Sirtori, and J. Nagle: *Ultrafast coherent electron transport in GaAs/AlGaAs quantum cascade structures*, Proceedings of HCIS-12, 2001, Physica B **314**, 314–322 (2002)
- C21 G. Kießlich, A. Wacker, and E. Schöll: *Nonlinear transport through an ensemble of quantum dots*, Proceedings of HCIS-12, 2001, Physica B **314**, 459–463 (2002)
- C22 A. Wacker and S.-C. Lee: *Gain and Loss in Quantum Cascade Lasers*, Proceedings of HCIS-12, 2001, Physica B **314**, 327–331 (2002)
- C23 A. Amann, A. Wacker, and E. Schöll: *Tripole current oscillations in superlattices*, Proceedings of HCIS-12, 2001, Physica B **314**, 404–408 (2002)
- C24 G. Kießlich, A. Wacker and E. Schöll: *Sequential Tunneling Through an Array of Electrostatically Coupled Quantum Dots*, Proceedings of EP2DS-14, 2001, Physica E **12**, 837–840 (2002)
- C25 C. Pacher, G. Strasser, E. Gornik, F. Elsholz, A. Wacker, and E. Schöll: *Optics with ballistic electrons: anti-reflection coatings for GaAs/AlGaAs superlattices*, Proceedings of EP2DS-14, 2001, Physica E **12**, 285–288 (2002)
- C26 S.-C. Lee and A. Wacker: *Quantum transport calculations for quantum cascade laser structures*, Proceedings of MSS-10, 2001, Physica E **13**, 858–861 (2002)
- C27 G. Kießlich, A. Wacker and E. Schöll: *Many-Particle Charging Effects and Recombination Current through a Quantum Dot Array*, in *Excitons and Many-Particle Effects in Semiconductors and Semiconductor Nanostructures*, edited by E. Runge, physica status solidi b, **234**, 215–220 (2002).
- C28 A.-K. Jappsen, A. Amann, A. Wacker, E. Schomburg, and E. Schöll: *Synchronization of dipole domains in GHz driven superlattices*, p 245 in *Proceedings of the 10<sup>th</sup> International Symposium on Nanostructures: Physics and Technology* (Ioffe Institute, St. Petersburg, 2002), Proc of SPIE **5023**, 220-223 (2003) DOI: 10.1117/12.513815
- C29 M.F. Pereira Jr., S.-C. Lee, and A. Wacker: *Many-Body Theory for Multiple Intersubband Absorption in Heterostructures*, Proceedings of ICSNN-2002, Physica E **17**, 618–619 (2003).
- C30 G. Kießlich, A. Wacker, E. Schöll, A. Nauen, F. Hohls, and R. J. Haug: *Shot Noise in Tunneling through a Quantum Dot Array*, Proceedings of QD-2002, physica status solidi (c) **0**, 1293–1296 (2003)
- C31 R. Wetzler, A. Wacker, and E. Schöll: *Non-local Auger effect in quantum dot devices*, Proceedings of HCIS-2003, Semiconductor Science and Technology **19**, S43-S44 (2004). DOI: 10.1088/0268-1242/19/4/016
- C32 G. Kießlich, H. Sprekeler, A. Wacker, and E. Schöll: *Positive correlations in tunneling through coupled quantum dots*, Proceedings of HCIS-2003, Semiconductor Science and Technology **19**, S37-S39 (2004). DOI: 10.1088/0268-1242/19/4/014
- C33 S.-C. Lee, M. Giehler, R. Hey, T. Ohtsuka, A. Wacker and H.T. Grahn: *Dependence of lasing properties of GaAs quantum cascade lasers on injector doping density: theory and experiment*, Proceedings of HCIS-2003, Semiconductor Science and Technology **19**, S45–S47 (2004). DOI: 10.1088/0268-1242/19/4/017
- C34 G. Kießlich, P. Samuelsson, A. Wacker, and E. Schöll: *Decoherence and current fluctuations in tunneling through coupled quantum dots* Proceedings of ICNF-2005, AIP Conference Proceedings **780**, 439–441 (2005) DOI: 10.1063/1.2036787
- C35 M.F. Pereira Jr., S.-C. Lee and A. Wacker: *Effect of Coulomb corrections and mean field for gain and absorption in quantum cascade lasers*, Proceedings of the ICSNN-2004, physica status solidi c **2**, 3027–3030 (2005) DOI: 10.1002/pssc.200460712
- C36 G. Kießlich, A. Wacker, and E. Schöll: *Super-Poissonian current fluctuations in tunneling through coupled quantum dots*, in *Proceedings of 14th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors*, edited by M. Saraniti and U. Ravaioli, Springer Proceedings in Physics, Vol. **110**, 23–27 (2006) DOI: 10.1007/978-3-540-36588-4\_6

- C37 D.G. Revin, M.R. Soulby, J.W. Cockburn, A.B. Krysa, J.S. Roberts, R.J. Airey, R. Nelander, M.F. Pereira, and A. Wacker: *Probing the electronic and optical properties of quantum cascade lasers under operating conditions* Proceedings of SPIE **6386**, 63860H (2006) DOI: 10.1117/12.692334
- C38 M.F. Pereira Jr. and A. Wacker: *Microscopic theory for intersubband spontaneous emission*, Proceedings of the ICSNN-2006, physica status solidi c **4**, 356–359 (2007) DOI: 10.1002/pssc.200673314
- C39 M.F. Pereira, R. Nelander, A. Wacker, D. Revin, J. Cockburn, M. Soulby, L. Wilson, A. Krysa, J. Roberts, and R. Airey: *Characterization of Intersubband Devices Combining a Nonequilibrium Many Body Theory with Transmission Spectroscopy Experiments* Journal of Materials Science: Materials in Electronics **18**, 689–694 (2007) DOI: 10.1007/s10854-006-9093-4
- C40 A. Wacker: *Coherence and Spatial Resolution of Transport in Quantum Cascade Lasers*, Proceedings of HCIS-15, physica status solidi c **5**, 215–220 (2008) DOI: 10.1002/pssc.200776508
- C41 C. Weber, G. Lindwall, and A. Wacker: *Zero-Phonon Line Broadening and Satellite Peaks in Nanowire Quantum Dots: The Role of Piezoelectric Coupling*, Proceedings of NOEKS-9, physica status solidi b **246**, 337 (2009) DOI: 10.1002/pssb.200880324
- C42 R. Nelander and A. Wacker: *Temperature degradation of the gain transition in terahertz quantum cascade lasers – the role of acoustic phonon scattering*, Proceedings of NOEKS-9, physica status solidi c **6**, 579 (2009) DOI: 10.1002/pssc.200880318
- C43 Andreas Wacker, Rikard Nelander, and Carsten Weber: *Simulation of gain in quantum cascade lasers* Proc. SPIE, **7230**, 72301A (2009) DOI: 10.1117/12.808882
- C44 Jonas N. Pedersen and A. Wacker: *Modeling of cotunneling in quantum dot systems*, Proceedings of the international conference on Frontiers of Quantum and Mesoscopic Thermodynamics (Prague 2008), Physica E **42**, 595 (2010) DOI: 10.1016/j.physe.2009.06.069
- C45 Martin Lindskog, David O. Winge and Andreas Wacker: *Injection schemes in THz quantum cascade lasers under operation* Proc. SPIE, **8846**, 884603 (2013) DOI: 10.1117/12.2024030
- C46 David O. Winge and Andreas Wacker: *Temperature dependent nonlinear response of quantum cascade structures*, Optical and Quantum Electronics **46**, 533 (2014) DOI: 10.1007/s11082-013-9779-9
- C47 F.A. Dantje and A. Wacker: *Time Dependent Study of Multiple Exciton Generation in Nanocrystal Quantum Dots*, Journal of Physics: Conference Series **696**, 12012 (2016) DOI: 10.1088/1742-6596/696/1/012012
- C48 D.O. Winge, M. Franckić, C. Verdozzi, A. Wacker, and M.F. Pereira: *Simple electron-electron scattering in non-equilibrium Green's function simulations*, Journal of Physics: Conference Series **696**, 12013 (2016) DOI: 10.1088/1742-6596/696/1/012013

## Conference abstracts and short proceedings without review

- D1 A. Wacker and E. Schöll: *Spatio-Temporal Voltage Oscillations of Vertical Transport in Semiconductor Heterostructures*, page 37 in *Proceedings of 8th Vilnius Symposium on Ultrafast Phenomena in Semiconductors*, (Academia, Vilnius, 1993).
- D2 A. Wacker, F. Prengel, and E. Schöll: *Theory of multistability and domain formation in semiconductor superlattices*, page 1075-1078 in *Proceedings of the 22<sup>nd</sup> International Conference on the Physics of Semiconductors*, Vol.II, edited by D. J. Lockwood (World Scientific, Singapore, 1995).
- D3 A. Wacker, S. Bose, M. Meixner, and E. Schöll: *Spiking exhibiting transient spatio-temporal chaos*, in *Self-Organization in Activator-Inhibitor-Systems: Semiconductors, Gas-Discharge and Chemical Active Media, Contributions to the 157th WE-Heraeus Seminar*, edited by H. Engel, F.J. Niedernostheide, H.-G. Purwins and E. Schöll, (Wissenschaft & Technik Verlag, Berlin, 1996).
- D4 J. Galán, L.L. Bonilla, M. Moscoso, M. Kindelan, O.M. Bulashenko, and A. Wacker: *Dynamics of electric field domains and chaos in semiconductor superlattices*, pages 217-222 in *Proceedings of the 4<sup>th</sup> international Workshop on Nonlinear Dynamics of Electronic Systems, Seville, Spain, June 27-28, 1996*.
- D5 R. Stasch, R. Hey, M. Asche, and A. Wacker: *Temperature persistent bistability and threshold switching in a single barrier heterostructure hot-electron diode*, page 3307-3310 in *Proceedings of the 23<sup>rd</sup> International Conference on the Physics of Semiconductors*, edited by M. Scheffler and R. Zimmermann (World Scientific, Singapore, 1996).
- D6 A. Wacker and A.-P. Jauho: *On the applicability of miniband transport in semiconductor superlattices*, page 66-69 in *Proceedings of the 6<sup>th</sup> International Symposium on Nanostructure: Physics and Technology* (Ioffe Institute, St. Petersburg, 1998).
- D7 A. Wacker and A.-P. Jauho: *Unification of the three standard approaches to superlattice transport by nonequilibrium quantum theory*, in *24<sup>nd</sup> International Conference on the Physics of Semiconductors*, edited by D. Gershoni, section V-A, article 58, on CD (World Scientific, Singapore, 1999).
- D8 C. Rauch, M. Kast, G. Strasser, K. Unterrainer, E. Gornik, A. Wacker, and S. Bose: *Coherence length of ballistically injected hot electrons in GaAs/AlGaAs superlattices*, in *24<sup>nd</sup> International Conference on the Physics of Semiconductors*, edited by D. Gershoni, section V-A, article 20, on CD (World Scientific, Singapore, 1999).
- D9 M. Meixner, P. Rodin, E. Schöll, and A. Wacker: *Dynamics and stability of lateral current density patterns in resonant-tunneling structures*, page 280-283 in *Proceedings of the 7<sup>th</sup> International Symposium on Nanostructure: Physics and Technology* (Ioffe Institute, St. Petersburg, 1999).
- D10 C. Pacher, G. Strasser, E. Gornik, F. Elsholz, A. Wacker, and E. Schöll: *Optics with ballistic electrons: Anti-reflection coatings for GaAs-AlGaAs superlattices*, pages 743-744 in *Proceedings of the 25<sup>th</sup> International Conference on the Physics of Semiconductors* (Springer, Berlin, 2001).
- D11 A. Amann, A. Wacker, L. L. Bonilla, and E. Schöll: *Field domains in semiconductor superlattices: Dynamic scenarios of multistable switching*, pages 801-802 in *Proceedings of the 25<sup>th</sup> International Conference on the Physics of Semiconductors* (Springer, Berlin, 2001).
- D12 R. Wetzler, C.M.A. Kapteyn, R. Heitz, A. Wacker, E. Schöll, and D. Bimberg: *Capacitance-voltage characteristics of self-organized quantum dots embedded in a pn junction*, pages 1093-1094 in *Proceedings of the 25<sup>th</sup> International Conference on the Physics of Semiconductors* (Springer, Berlin, 2001).
- D13 G. Kießlich, A. Wacker, and E. Schöll: *Geometry effects at conductance quantization in quantum wires*, pages 1101-1102 in *Proceedings of the 25<sup>th</sup> International Conference on the Physics of Semiconductors* (Springer, Berlin, 2001).
- D14 A. Amann, J. Schlesner, A. Wacker, and E. Schöll: *Self-generated chaotic dynamics of field domains in superlattices* in: *Proceedings of the 26th International Conference on the Physics of Semiconductors (ICPS-26)*, Edinburgh 2002, ed. by J. H. Davies and A. R. Long (Institute of Physics, 2003).
- D15 A. Rack, R. Wetzler, A. Wacker, and E. Schöll: *Bistability and hysteresis in self-organised quantum dot structures* in: *Proceedings of the 26th International Conference on the Physics of Semiconductors (ICPS-26)*, Edinburgh 2002, ed. by J. H. Davies and A. R. Long (Institute of Physics, 2003).

- D16 M.F. Pereira, Jr. and A. Wacker: *Many particle theory for optical gain in quantum cascade lasers* Conference on Lasers and Electro-Optics, (CLEO 2003),  
DOI: 10.1109/CLEO.2003.1297754
- D17 M.F. Periera, Jr., S.-C. Lee, and A. Wacker: *Nonequilibrium theory for gain in quantum cascade lasers* Proceedings of the IEEE/LEOS 3rd International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices (NUSOD 2003), page 5 – 6 (2003), DOI: 10.1109/NUSOD.2003.1259026
- D18 M.F. Pereira, S.-C. Lee and A. Wacker: *Nonequilibrium and many body effects in the realistic simulation of intersubband emitters* Proceedings of the 4th International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD'04), IEEE Conference Proceeding, pages 94–96 (2004),  
DOI: 10.1109/NUSOD.2004.1345171
- D19 A. Wacker and M.F. Pereira: *Modeling of Transport and Gain in Quantum Cascade Lasers*, Proceedings of the 5th International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD'05), IEEE Conference Proceeding, pages 27–28 (2005),  
DOI: 10.1109/NUSOD.2005.1518118
- D20 C. Weber, F. Banit, A. Wacker, and A. Knorr: *Theory of the ultrafast nonlinear optical properties of quantum cascade lasers: From gain spectra to electronic wave packets* Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS 2006),  
DOI: 10.1109/CLEO.2006.4629059
- D21 M.F. Pereira and A. Wacker: *Microscopic Intersubband Optics: Nonequilibrium Many-Body Physics Meets Device Engineering*, 8-th International Conference on Laser and Fiber-Optical Networks Modeling, page 481 (2006),  
DOI: 10.1109/LFNM.2006.251973
- D22 C. Weber, F. Banit, A. Wacker, and A. Knorr: *Nonlinear Carrier Waves and Gain Oscillations in Infrared and Terahertz Quantum Cascade Lasers*, Conference on Lasers and Electro-Optics and Conference on Quantum Electronics and Laser Science (CLEO/QELS 2007), JWA135,  
DOI: 10.1109/CLEO.2007.4453615
- D23 G. Giuliani, S. Donati, A. Villafranca, J. Lasobras, I. Garces, M. Chacinski, R. Schatz, C. Kouloumentas, D. Klonidis, I. Tomkos, P. Landais, R. Escorihuela, J. Rorison, J. Pozo, A. Fiore, P. Moreno, M. Rossetti, W. Elsasser, L. von Staden, G. Huyet, M. Saarinen, M. Pessa, P. Leinonen, V. Vilokkinen, M. Sciamanna, J. Danckaert, K. Panajotov, T. Fordell, A. Lindberg, J.-F. Hayau, J. Poette, P. Besnard, F. Grillot, M. Pereira, R. Nelander, A. Wacker, A. Tredicucci, R. Green: *Round-Robin Measurements of Linewidth Enhancement Factor of Semiconductor Lasers in COST 288 Action* European Conference on Lasers and Electro-Optics, 2007 and the International Quantum Electronics Conference (CLEOE-IQEC 2007),  
DOI: 10.1109/CLEOE-IQEC.2007.4385967
- D24 M.F. Pereira, R. Nelander, and A. Wacker: *The alpha factor of a quantum cascade laser*, Proceedings of the 8th International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD 2008), IEEE Conference Proceeding, pages 117–118 (2008),  
DOI: 10.1109/NUSOD.2008.4668270
- D25 C. Weber and A. Wacker: *Coherence in optics and transport in terahertz quantum cascade lasers*, Conference on Lasers and Electro-Optics and Conference on Quantum Electronics and Laser Science (CLEO/QELS 2008), JThA7 (2008),  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4572322&isnumber=4571172>
- D26 C. Weber, A. Knorr, and A. Wacker: *Density-matrix theory of quantum cascade lasers: Localization effects*, International Workshop on Terahertz and Midinfrared Applications (2009),  
DOI: 10.1109/TERAMIR.2009.5379657
- D27 A. Wacker: *Quantum Kinetics of Transport and Gain in Quantum Cascade Lasers: Looking for the Essential Principles of Design*, Conference on Lasers and Electro-Optics (CLEO 2010)/Quantum Electronics and Laser Science Conference (QELS 2010), QThF5 (2010),  
<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=5500801>
- D28 S. Fatholouloumi, E. Dupont, Z.R. Wasilewski, G. Aers, S.R. Laframboise, M. Lindskog, A. Wacker, D. Ban, H.C. Liu: *Terahertz Quantum Cascade Lasers Based on Phonon Scattering Assisted Injection and Extraction*, Conference on Lasers and Electro-Optics (CLEO 2012),  
<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6325968>

- D29 F. Carosella, C. Ndebeka-Bandou, R. Ferreira, G. Bastard, and A. Wacker: *Absorption in disordered heterostructures: Contributions from intra- and inter-subband scattering and impact of localised states*, Proceedings of the 2014 International Workshop on Computational Electronics (IWCE), DOI: 10.1109/IWCE.2014.6865834
- D30 David O. Winge, Martin Franckie, Claudio Verozzi, Andreas Wacker, Mauro F. Pereira: *A simple approach for electron-electron scattering in nonequilibrium Green's function simulations*, SPIE Proceedings **9934**, 99340B (2016), DOI: 10.1117/12.2238613
- D31 Mauro F. Pereira, David O. Winge, Andreas Wacker: *Theory of THz harmonic generation in semiconductor superlattices*, SPIE Proceedings **9934**, 993403 (2016), DOI: 10.1117/12.2238615
- D32 Mauro F. Pereira, David O. Winge, Andreas Wacker, Louise Jumpertz, Florian Michel, Robert Pawlus, Wolfgang E. Elsaesser, Kevin Schires, Mathieu Carras, Frédéric Grillot: *Nonequilibrium Green's functions theory for the alpha factor of quantum cascade lasers*, SPIE Proceedings **9934**, 993408 (2016), DOI: 10.1117/12.2238619