

LIST OF PUBLICATIONS
Dr Stanko S. Tomić

Book Chapters:

P.J. Klar and **S. Tomić**, “Electronic properties of (Ga,In)(N,As)-based heterostructures” Chapter 5 in *Physics and application of dilute nitrides* (Eds. I. Buyanova and C. Weimin, Taylor&Francis Books Inc. London 2004, **ISBN: 1591690196**) p. 117-160.

E.P. O’Reilly, A. Lindsey, S. Fehy, **S. Tomić**, and P.J. Klar, “A tight-binding based analysis of the band anti-crossing model and its application in GaNAs alloys” in *Dilute Nitrides (III-N-V) Semiconductors: Physics and Technology* (Ed. M. Henin, Elsevier Science, Amsterdam 2005, **ISBN: 0080445020**) Chapter 11, p.361-391.

International Journals

- [1] **S. Tomić**, “Optical properties of dilute nitrogen GaInNAs quantum dots,” accepted for publication in *Applied Physics Letters* (available on request)
- [2] W. M. McGee, R.S. Williams, M.J. Ashwin, T. S. Jones, E. M. Clarke, J. Zhang, and **S. Tomić**, “Structure, morphology, and optical properties of GaInNAs quantum wells: the influence of the growth mechanism,” accepted for publication in *Physical Review B* (available on request)
- [3] R.S. Williams, W.M. McGee, M.J. Ashwin, T. S. Jones, E. Clarke, P. Stavrinou, J. Zhang, **S. Tomić**, C.P.A. Mulcahy, “Wavelength control across the near IR-spectrum with GaInNAs,” *Applied Physics Letters*, vol. **90**, 032109 (2007)
- [4] P. J. Klar, J. Teubert, M. Güngerich, T. Niebling, H. Grüning, W. Heimbrodtt, K. Volz, W. Stolz, A. Polimeni, M. Capizzi, E. P. O’Reilly, A. Lindsay, M. Galuppi, L. Geelhaar, H. Riechert, and **S. Tomić**, “Hydrostatic pressure experiments on dilute nitride alloys,” *Physica Status Solidi (b)*, vol. **244**, 24 (2007) (*invited*)
- [5] D.G. McConville, S.J. Sweeney, A.R. Adams, **S. Tomić** and H. Riechert, “The temperature and pressure dependence of the recombination mechanisms in 1.3 μ m and 1.5 μ m GaInNAs lasers,” *Physica Status Solidi (b)*, vol. **244**, 208 (2007)
- [6] S. R. Jin, C.N. Ahmad, S.J. Sweeney, A.R. Adams, B.N. Murdin, H. Page, X. Marcadet, C. Sirtori and **S. Tomić**, “ Spectroscopy of GaAs/AlGaAs quantum-cascade lasers using hydrostatic pressure” *Applied Physics Letters*, vol. **89**, 221105 (2006)
- [7] **S. Tomić**, “Electronic and optical properties of dilute nitrogen quantum dots,” *IEE Proceedings-Optoelectronics*, vol. **153**, 293 (2006) (*Special Issue*)
- [8] **S. Tomić**, A.G. Sunderland, and I.J. Bush, “Parallel multi-band **kp** code for electronic structure of zinc-blend semiconductor quantum dots,” *Journal of Materials Chemistry*, vol. **16**, 1963-1972 (2006) (*Special Issue*)
- [9] **S. Tomić**, “Electronic structure of InGaAsN/GaAs(N) quantum dots by 10-band **kp** theory,” *Physical Review B*, vol. **73**, 125348 (2006).

- [10] **S. Tomić**, P. Howe, N.M. Harrison, and T.S. Jones, “Theoretical analysis of strain and strain-decay in InAs/GaAs(001) multilayer quantum dot growth,” *Journal of Applied Physics*, vol. **99**, 093522 (2006)
- [11] **S. Tomić**, E.P. O’Reilly, “Influence of confinement energy and band-anti-crossing effect on the electron effective mass in GaInNAs quantum wells,” *Physical Review B*, vol. **71**, 233301 (2005).
- [12] **S. Tomić**, E.P. O’Reilly, P.J. Klar, H. Grüning, W. Heimbrod, W.M. Chen and I.A. Buyanova, “The influence of conduction-band nonparabolicity on electron confinement and effective mass in Ga(N,As)/GaAs quantum wells”, *Physical Review B*, Vol. **69**, 245305 (2004)
- [13] E.P. O’Reilly, A. Lindsay, **S. Tomić** and P.J. Klar, “Theory of electron confinement and electron effective mass in dilute nitride alloys and heterostructures” *Physica Status Solidi (b)* (**Invited Paper**), vol. **241**, No. 14, 3099-3106 (2004)
- [14] **S. Tomić**, E.P. O’Reilly, R. Fehse, S.J. Sweeney, A.R. Adams, A.D. Andreev, S. A. Choulis, T.J.C. Hosea and H. Riechert, “Theoretical and Experimental Analysis of 1.3 μm InGaAsN/GaAs Lasers”, *IEEE Journal of Selected Topics in Quantum Electronics* (**Invited**), Vol. **9**, No.5, p. 1228- 1238 (2003).
- [15] S.R. Jin, S. J. Sweeney, **S. Tomić**, A. R. Adams, and H. Riechert, “High-Pressure Studies of Recombination Mechanisms in 1.3 μm GaInNAs Quantum-Well Lasers”, *IEEE Journal of Selected Topics in Quantum Electronics*, Vol. **9**, No.5, p. 1196- 1201 (2003).
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- [19] D. Indjin, **S. Tomić**, Z. Ikonić, P. Harrison, R. W. Kelsall, V. Milanović, and S. Kocinac, “Digitally graded GaAs/Al₄₄Ga₅₆As quantum-cascade laser”, *Physica E*, Vol. **17**, p.620-622 (2003)
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- [24] G. Knowles, **S. Tomić**, S. Jin, R. Fehse, S. J. Sweeney, T. E. Sale, and A. R. Adams, "Gain-cavity alignment profiling of 1.3 μm emitting GaInNAs vertical cavity surface emitting lasers (VCSELs) using high pressure techniques", *Physica Status Solidi (b)*, Vol. **235**, No. 2, pp. 480-485 (2003)
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- [52] D. Indjin, V. D. Jovanović, C. Worrall, H. E. Beere, Z. Ikonić, N. Vukmirović, P. Harrison, R. W. Kelsall, E. H. Linfield, H. Page, C. Sirtori, D. A. Ritchie, V. Milanović, **S. Tomić**, and S. Kočinac, “Spontaneous emission from a mid-infrared digitally graded GaAs/AlGaAs quantum cascade structure,” submitted for publications in *Journal of Applied Physics* (available on request)

Conference papers:

- [53] **S. Tomić**, “Electronic structure of the dilute nitrogen quantum dots,” 28th International Conference on the Physics of Semiconductors (ICPS '06) 24-28 July 2006, Vienna, Austria. (in press, AIP)
- [54] **S. Tomić**, P. Howe, N.M. Harrison, T.S. Jones, “Analysis of strain-decay in InAsGaAs(001) multilayer quantum dot growth,” 28th International Conference on the Physics of Semiconductors (ICPS '06) 24-28 July 2006, Vienna, Austria. (in press, AIP)
- [55] **S. Tomić**, “Band structure of the InGaAsN/GaAs(N) quantum dots by 10-band **kp** theory,” 5th International Conference of Numerical Simulation of Optoelectronic Devices (NUSOD '05) 19-23 September 2005, Berlin, Germany, (IEEE LEOS Press, NY, 2005) p.3, (**oral presentation**)
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- [59] O’Reilly EP, Fahy S, Lindsay A, **Tomic S**, Fehse R, Adams AR, Sweeney SJ, Andreev AD, Klar PJ, Gruning H, Riechert H. “Novel electronic and optoelectronic properties of GaInNAs and related alloys.” *Conference on Lasers and Electro-Optics (CLEO) (IEEE Cat. No.CH37419-TBR)*. Optical Soc. of America. 2003, pp.3 Washington, DC, USA.
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- [61] **S. Tomić**, R. Fehse, S. A. Choulis, E.P. O’Reilly, A.R. Adams, S.J. Sweeney, A.D. Andreev, T.J.C. Hosea and H. Riechert, “Experimental and Theoretical Analysis of the Recombination Processes in GaInNAs 1.3 μm Lasers”, 18th IEEE International Semiconductor Laser Conference, Garmisch-Partenkirchen, Germany, Sep./Oct. 2002, (IEEE LEOS Press, NY, 2002) p.41-42, (**also oral presentation**)
- [62] G. Knowles, R. Fehse, **S.Tomić**, S.J. Sweeney, T.E. Sale, A.R. Adams, E. P. O’Reilly, G. Steinle and H. Riechert, “The temperature and pressure dependence of 1.3 μm GaInNAs vertical-cavity surface-emitting lasers (VCSELs)”, 18th IEEE International Semiconductor Laser Conference, Garmisch-Partenkirchen, Germany, Sep./Oct. 2002, (IEEE LEOS Press, NY, 2002) p.139-140, (**also oral presentation**).
- [63] A. Lindsay, **S. Tomić** and E. P. O’Reilly, “Derivation of a 10-band **kp** model and general theory of band-gap bowing for dilute nitride and other tetrahedrally bonded smiconductors”, 26th International Conference on the Physics of Semiconductors, Edinburgh, Scotland, UK, July-August 2002 (Publish by IoP, P-30:1-6).
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- [65] **S. Tomić**, E. P. O’Reilly, A. R. Adams and R. Fehse, “A Theoretical Analysis of the Radiative Current and its Dependence on Pressure in GaInNAs 1.3 μm Lasers”, *LEOS 2001 14th Annual Lasers and Electro Optics Society Meeting*, San Diego, California, USA, November 2001, (IEEE LEOS Press, NY, 2001) vol.1, p. 328-329, (**oral presentation**).
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Conference contributions:

- [70] **S. Tomić**, P. Howe, N.M. Harrison, T.S. Jones “Theoretical analysis of strain-decay in InAs/GaAs multilayer quantum dot growth,” CMMP 2006, 20-21 April 2006, University of Exeter, Exeter , UK, Book of Abstracts p. 73
- [71] **S. Tomić**, “Electronic structure of the dilute nitrogen quantum dots,” CMMP 2006, 20-21 April 2006, University of Exeter, Exeter , UK, Book of Abstracts p. 74
- [72] **S. Tomić**, A. Sunderland, and I. Bush, “Parallel plane waves multi-band **kp** code for electronic structure of semiconductor quantum dots,” CMMP 2006, 20-21 April 2006, University of Exeter, Exeter , UK, Book of Abstracts p. 74
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- [74] **S. Tomić**, B.G. Searle and A. Wander, “Status report on DL_EXCURV software,” XAS User Group Meeting 2005, University of Warwick, Coventry, UK
- [75] E. P. O’Reilly, A. Lindsay, S. Fahy, and **S. Tomić**, “Theory of the electronic structure of dilute nitride alloys: beyond the band-anti-crossing model,” The 20th General Conference of the Condensed Matter Division, European Physical Society, Prague, July 19-23, 2004, Czech Republic, Book of Abstracts p.163 (**Invited Talk**)
- [76] **S. Tomić** “Band structure and laser characteristics of Ga(In)NAs/GaAs QWs: comparison of theory and experiment,” The 20th General Conference of the Condensed Matter Division, European Physical Society, Prague, July 19-23, 2004, Czech Republic, Book of Abstracts p.164 (**Invited Talk**)
- [77] E.P. O’Reilly, A. Lindsay, S. Fahy, **S. Tomić** and P.J. Klar, “Electronic structure of dilute III-V-nitride alloys: how robust is the band-anti-crossing model?,” August 2-5, 2004 University of California Berkeley, CA USA (**Invited Talk**) Book of Abstracts.
- [78] **S. Tomić** and E. P. O’Reilly, “An analytical two-band model for conduction band dispersion and confinement energy in Ga(In)NAs/GaAs quantum well structures”, Condensed Matter and

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- [81] G.Knowles, **S. Tomić**, S.J. Sweeney, S. Jin, R. Fehse and A.R. Adams, "Gain-cavity alignment profiling of 1.3 μm emitting GaInNAs Vertical cavity surface emitting lasers (VCSELs) using high pressure techniques", 10th International Conference on High Pressure Semiconductor Physics, August 5-8, 2002, Guildford, United Kingdom, Book of Abstracts.
- [82] S.R. Jin, S. J. Sweeney, **S. Tomić**, A. R. Adams and H. Riechert, "Recombination currents in 1.3 μm GaInNAs quantum-well lasers investigated using spontaneous emission measurements under high hydrostatic pressure", 10th International Conference on High Pressure Semiconductor Physics, August 5-8, 2002, Guildford, United Kingdom, Book of Abstracts.
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- [84] G.Knowles, S.J. Sweeney, S. Jin, **S. Tomić**, R. Fehse and A.R. Adams, "Temperature dependence of 1.3 μm GaInNAs vertical-cavity surface-emitting lasers (VCSELs)", Photon 2002, September 2-5, 2002, Cardiff, United Kingdom, Book of Abstracts.
- [85] **S. Tomić** and E. P. O'Reilly, "Analysis of Gain and Differential Gain in ideal dilute-nitride GaInNAs/GaAs lasers", CMD19-CMMP 2002, 7-11 April 2002, Brighton, England, C43.P.3.2, p. 248
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