

Publications of Vincent Desmaris

August 2016

Vincent Desmaris is author / co-author of about 100 patents and publications in refereed journals, conference presentations, etc... The publications are listed in the chronological order and sorted according to their type: journal articles, conference publications, patents and popular science contributions.

h index: 14

1. Refereed scientific journal articles

- [1] **V. Desmaris**, J. Eriksson, N. Rorsman, and H. Zirath, "Low-resistance Si/Ti/Al/Ni/Au multilayer ohmic contacts to undoped AlGaN/GaN heterostructures," *Electrochemical and Solid-state Letters*, vol. 7, p. G72, 2004.
- [2] M. Rudzinski, **V. Desmaris**, P. Van Hal, J. Weyher, P. Hageman, K. Dynefors, T. Rödle, R. Jos, H. Zirath, and P. Larsen, "Growth of Fe doped semi-insulating GaN on sapphire and 4H-SiC by MOCVD," *Physica Status Solidi (c)*, vol. 6, pp. 2231-6, 2006.
- [3] **V. Desmaris**, J.-Y. Shiu, C.-L. Lu, N. Rorsman, H. Zirath, and E.-Y. Chang, "Transmission electron microscopy assessment of the Si enhancement of Ti/Al/Ni/Au Ohmic contacts to undoped AlGaN/GaN heterostructures," *Journal of Applied Physics*, vol. 100, pp. 34904-1-4, 2006.
- [4] **V. Desmaris**, M. Rudzinski, N. Rorsman, P. Hageman, P. Larsen, H. Zirath, T. Rödle, and R. Jos, "Comparison of the DC and microwave performance of AlGaN/GaN HEMTs grown on SiC by MOCVD with Fe-doped or unintentionally doped GaN buffer layers," *IEEE Transactions on Electron Devices*, vol. 53, pp. 2413-17, 2006.
- [5] S. Cherednichenko, V. Drakinskiy, J. Baubert, J. M. Krieg, B. Voronov, G. Gol'tsman, and **V. Desmaris**, "Gain bandwidth of NbN hot-electron bolometer terahertz mixers on 1.5 μm Si₃N₄/SiO₂ membranes," *Journal of Applied Physics*, vol. 101, pp. 124508-6, 2007.
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- [9] V. Vassilev, D. Meledin, I. Lapkin, V. Belitsky, O. Nyström, D. Henke, A. Pavolotsky, R. Monje, C. Risacher, M. Olberg, M. Strandberg, E. Sundin, M. Fredrixon, S.-E. Ferm, **V. Desmaris**, D. Dochev, M. Pantaleev, P. Bergman, and H. Olofsson, "Swedish heterodyne facility instrument for the APEX telescope", *Astronomy and Astrophysics*, A&A 490, pp. 1157-1163, 2008.

- [10] **V. Desmaris**, D. Meledin, A. Pavolotsky, R. Monje, and V. Belitsky, "All-metal micromachining for the fabrication of sub-millimetre and THz waveguide components and circuits," *J. Micromech. Microeng.*, vol. 18, pp. 095004, 2008.
- [11] D. Meledin, A. Pavolotsky, **V. Desmaris**, I. Lapkin, C. Risacher, V. Perez, D. Henke, O. Nystrom, E. Sundin, D. Dochev, M. Pantaleev, M. Strandberg, B. Voronov, G. Goltsman, and V. Belitsky, "A 1.3 THz Balanced Waveguide HEB Mixer for the APEX Telescope", *IEEE Tran., MTT*, vol. 57, n. 1, pp. 89–97, 2009.
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- [13] A. Saleem; J. Berg; **V. Desmaris**; M. Kabir, "Nanoimprint lithography using vertically aligned carbon nanostructures as stamps", *Nanotechnology*, vol. 20, pp. 375302, 2009
- [14] D. Dochev, **V. Desmaris**, A. B. Pavolotsky, D. Meledin, Z. Lai, A. Henry, E. Janzén, E. Pippel, J. Woltersdorf, and V. Belitsky, "Growth and characterization of epitaxial ultra-thin NbN films on 3C-SiC/Si substrate for terahertz applications," *Supercond. Sci. Technol.*, vol. 24, p. 035016, 2011.
- [15] D. Dochev, **V. Desmaris**, A. B. Pavolotsky, D. Meledin, and V. Belitsky, "A Technology Demonstrator for 1.6–2.0 THz Waveguide HEB Receiver with a Novel Mixer Layout," *Journal of Infrared, Millimeter and Terahertz Waves*, vol. 32, p. 451., 2011
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- [17] B. Billade, H. Rashid, **V. Desmaris**, V. Belitsky, "Superconducting 4–8 GHz IF Hybrid for Low Noise mm-Wave Sideband Separation SIS Receiver", *IEEE Microwave and Wireless Components Letters*, 22 (11) pp. 589-591. 2012
- [18] H. Rashid, D. Meledin, **V. Desmaris**, A. Pavolotsky, V. Belitsky, "Superconducting 4–8-GHz Hybrid Assembly for 2SB Cryogenic THz Receivers", *IEEE transactions on Terahertz science and Technology*, 4 (2) pp. 193-200. 2012
- [19] H. Rashid, D. Meledin, **V. Desmaris**, V. Belitsky, "Novel Waveguide 3 dB Hybrid With Improved Amplitude Imbalance", *IEEE Microwave and Wireless Components Letters*, 24 (4) pp. 212-214, 2014
- [20] S. Krause, **V. Desmaris**, D. Meledin, A. Pavolotsky, V. Belitsky, M. Rudzinski, E. Pippel, "Epitaxial growth of ultra-thin NbN films on Al_xGa_{1-x}N buffer layers", *Supercond. Sci. Technol.*, 2014
- [21] A. Saleem, S. Rahiminejad, **V. Desmaris** och P. Enoksson, "Carbon nanotubes as base material for fabrication of gap waveguide components", *Sensors and Actuators A: Physical* 224, p1663-168, 2015.
- [22] A.M. Saleem, G. Göransson, **V. Desmaris**, P. Enoksson, "CMOS compatible on-chip decoupling capacitor based on vertically aligned carbon nanofibers", *Solid-State Electronics*, 107, pp. 15–19, 2015
- [23] A. M Saleem, S. Shafiee, T. Krasia-Christoforou, I. Savva, G. Göransson, **V. Desmaris** and Peter Enoksson, "Low temperature and cost-effective growth of

- vertically aligned carbon nanofibers using spin-coated polymer-stabilized palladium nanocatalysts”, *Science and Technology of Advanced materials*, 2015.
- [24] Yadranjee Aghdam, P., Rashid, H., Pavolotsky, A., **V. Desmaris**, D. Meledin, V. Belitsky “Direct Measurement of Superconducting Tunnel Junction Capacitance”. *IEEE Transactions on Terahertz Science and Technology* . 5 (3) s. 464-469, 2015
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- [27] H. Rashid; **V. Desmaris**; V. Belitsky; M. Ruf; T. Bednorz; A. Henkel, “Design of Wideband Waveguide Hybrid With Ultra-Low Amplitude Imbalance”, *IEEE Transactions on Terahertz Science and Technology* . 6 (1) s. 83-90, 2016
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- [30] A.M Saleem, **V. Desmaris**, P.Enoksson, “Performance, Enhancement of Carbon Nanomaterials for Supercapacitors”, *Journal of Nanomaterials*, 2016

2. Refereed conference papers

- [31] **Desmaris, V.** ; Dynefors, K. ; Eriksson, J. et al. (2001). Research and development of AlGa_N/Ga_N HEMTs, *Proceedings of GHz2001*, 2001
- [32] T. Kawahara, F. Fálth, X. Liu, T. Andersson, and **V. Desmaris**, "Inductively Coupled Plasma Etching of Ga_N Mesa Structures for Microphotoluminescence," in *Proceedings of the 2nd IMP3 conference*, 2003.
- [33] K. Andersson, **V. Desmaris**, J. Eriksson, N. Rorsman, and H. Zirath, "C-Band Linear Resistive Wide Bandgap FET Mixers," in *IEEE MTT-S International Microwave Symposium Digest*, 2003.
- [34] **V. Desmaris**, J. Eriksson, N. Rorsman, and H. Zirath, "High CW power 0.3 um gate AlGa_N/Ga_N HEMTs grown by MBE on sapphire," *International conference on Silicon Carbide and Related Materials/Material Science Forum*, vol. 457-460, 2004.
- [35] K. Dynefors, **V. Desmaris**, J. Eriksson, N. Rorsman, and H. Zirath, "Simple self-aligned fabrication process for silicon carbide static induction transistors," *International conference on Silicon Carbide and Related Materials/Material Science Forum*, vol. 457-460, p. 1125, 2004.
- [36] I. Angelov, **V. Desmaris**, K. Dynefors, P. Å. Nilsson, and H. Zirath, "On the large-signal modelling of AlGa_N/Ga_N HEMTs and SiC MESFETs," in *Proceedings of the GAAS05 conference* Paris, France, 2005.

- [37] J. Baubert, P. Khosropanah, **V. Desmaris**, V. Drakinsky, P. Pons, P. Calmon, H. Merkel, and M. Salez, "FTS measurements of a 2.5 THz double-slot antenna on SiO₂/Si₃N₄ membrane with a NbN HEB mixer," in *ISSTT2005* Göteborg, Sweden, 2005.
- [38] J. Baubert, P. Khosropanah, **V. Desmaris**, V. Drakinsky, P. Pons, P. Calmon, H. Merkel, and M. Salez, "FTS Measurements of a 2.5 and 4.7 THz double-slot antennas on SiO₂/Si₃N₄ membrane," in *IRMMW-THz2005* Williamsburg, Virginia USA, 2005.
- [39] M. Rudzinski, **V. Desmaris**, P. Van Hal, J. Weyher, P. Hageman, K. Dynefors, T. Rödle, R. Jos, H. Zirath, and P. larsen, "Growth of Fe doped semi-insulating GaN on sapphire and 4H-SiC by MOCVD," in *International Conference on Nitride Semiconductor ICNS-6* Bremen, Germany, 2005.
- [40] I. Angelov, K. Andersson, D. Schreuers, N. Rorsman, **V. Desmaris**, M. Südow, and H. Zirath, "Large-Signal Modelling and Comparison of AlGaIn/GaN HEMTs and SiC MESFETs," in *IEEE Asia Pacific Microwave Conference* Yokohama, Japan, 2006.
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- [42] V. Belitsky, V. Vassilev, R. Monje, A. Pavolotsky, D. Meledin, D. Henke, O. Nyström, **V. Desmaris**, C. Risacher, M. Svensson, M. Olberg, E. Sundin, M. Fredrixon, D. Dochev, S.-E. Ferm and H. Olofsson, "Facility Heterodyne Receiver for the Atacama Pathfinder Experiment Telescope," in *IRMMW-THz 2007* Cardiff, UK, 2007.
- [43] F.P. Mena, J. Kooi, A.M. Baryshev, C.F.J. Lodewijk, T.M. Klapwijk, W. Wild, **V. Desmaris**, D. Meledin, A. Pavolotsky, and V. Belitsky, "RF Performance of a 600 - 720 GHz Sideband-Separating Mixer with All-Copper Micromachined Waveguide Mixer Block", *Proceedings of the 19th International Symposium on Space Terahertz Technology*, Groningen, April 28-30, 2008.
- [44] D. Meledin, **V. Desmaris**, S.-E. Ferm, M. Fredrixon, D. Henke, I. Lapkin, O. Nyström, A. Pavolotsky, M. Strandberg, E. Sundin and V. Belitsky, "APEX Band T2 1.25 – 1.39 THz Waveguide Balanced HEB Receiver", *Proceedings of the 19th International Symposium on Space Terahertz Technology*, pp. 181-185, Groningen, April 28-30, 2008.
- [45] I. Lapkin, O. Nyström, V. Belitsky, **V. Desmaris**, D. Dochev, S.-E. Ferm, D. Henke, D. Meledin, R. Monje, M. Strandberg, E. Sundin and V. Vassilev, "Optics Design and Verification for the APEX Single-Pixel Heterodyne Facility Instrument", *Proceedings of the 19th International Symposium on Space Terahertz Technology*, Groningen, pp. 351-357, April 28-30, 2008.
- [46] R. Monje, V. Belitsky, V. Vassilev, A. Pavolotsky, I. Lapkin, **V. Desmaris**, D. Meledin, D. Henke, D. Dochev, "A 0.5 THz Sideband Separation SIS Mixer for APEX Telescope", *Proceedings of the 19th International Symposium on Space Terahertz Technology*, P3-3, pp. 439- 443, Groningen, April 28-30, 2008.
- Number of citations: 2.
- [47] **V. Desmaris**, D. Meledin, A. Pavolotsky, and V. Belitsky, "Microfabrication Technology for All-Metal Sub-mm and THz Waveguide Receiver Components", *Proceedings of the 19th International Symposium on Space Terahertz Technology*, pp. 342-345, Groningen, April 28-30, 2008.

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- [57] **V. Desmaris**, D. Dochev, D. Meledin, A. Pavolotsky V. Belitsky, “Waveguide Packaging Technology for THz Components and Systems”, *Proceedings of the 6th ESA Work 6th ESA Workshop on Millimetre-Wave Technology*, Espoo, Finland, 2011.
- [58] Victor Belitsky, **V. Desmaris**, D. Dochev, D. Meledin, A. Pavolotsky, “Towards Multi-Pixel Heterodyne Terahertz Receivers”, *Proceedings of the 22nd International Symposium on Space Terahertz Technology*, Tucson, AZ, USA, April 26-28, 2011.
- [59] B. Billade, O. Nyström, D. Meledin, E. Sundin, I. Lapkin, M. Fredrixon, **V. Desmaris**, H. Rashid, M. Strandberg, S-E. Ferm, H. Wang, H. Xu, M. Obrocka, B.

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- [60] **V. Desmaris**, M. Rudzinaki, "Surface Engineering for High Efficiency GaN HEMTs", *Proceedings of the 7th international Workshop on Semiconductor Surface Passivation, 11-15 Sept. 2011, Krakow, Poland, 2011*. – **Invited talk**
- [61] **V. Desmaris**, D. Meledin, D. Dochev, A. Pavolotsky, Victor Belitsky, "Terahertz components packaging using integrated waveguide technology", *IEEE MTT-S International Microwave Workshop on Millimeter Wave Integration Technologies, IMWS 2011, Sitges, Spain, p 81-84, 2011*
- [62] M. Kabir, **V. Desmaris**, A. Saleem, J. Berg, P. Enoksson, L-G. Huss, R. Jonsson, S. Rudner, M. Hoijer, M. Sarto, A. Tamburrano, " ", *Proceedings of the NT11 International Conference on the Science and Application of Nanotubes, Cambridge, UK, July 10-16, 2011*.
- [63] S. Krause, **V. Desmaris**, A. Pavolotsky, D. Meledin, V. Belitsky, E. Pippel, "Ultra-thin film NbN depositions for HEB heterodyne mixer", *Proceedings of the 24th International Symposium on Space Terahertz Technology, Groningen, Holland, April 8-10, 2013*
- [64] H. Rashid, D. Meledin, **V. Desmaris**, V. Belitsky, "Advanced IF hybrid design for better side band separation performance of SIS mixers" *Proceedings of the 24th International Symposium on Space Terahertz Technology, Groningen, Holland, April 8-10, 2013*
- [65] **V. Desmaris**, V. Belitsky, "Modern THz instrumentation for space science utilizing SIS and HEB devices", *IEEE MTT-S International Wireless Symposium (IWS2013), Beijing, China, April. 14-18, 2013 – Invited talk*
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- [67] S. Krause, **V. Desmaris**, D. Meledin, V. Belitsky, M. Rudzinski, E. Pippel, "Deposition of high-quality ultra-thin NbN films at ambient temperatures", *Proceedings of the 24th International Symposium on Space Terahertz Technology, Moscow, Russia, April 27-30, 2014*
- [68] H. Rashid, D. Meledin, **V. Desmaris**, V. Belitsky, "Improved Quadrature RF Hybrid for 2SB and Balanced THz Receivers", *Proceedings of the 24th International Symposium on Space Terahertz Technology, Moscow, Russia, April 27-30, 2014*
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- [70] P. Yadranejee Aghdam, H. Rashid, A. Pavolotsky, **V. Desmaris**, D. Meledin, V. Belitsky. "SIS Tunnel Junction's Specific Capacitance Direct Measurement" *Proceedings of the 24th International Symposium on Space Terahertz Technology, Moscow, Russia, April 27-30, 2014*
- [71] **V. Desmaris**, A. Saleem, S. Shafiee, J. Berg, M. Kabir och A. Johansson, "Carbon Nanofibers (CNF) for Enhanced Solder-based Nano-Scale Interconnects and Packaging Solutions." (Proceedings of Semicon Taiwan 2014), 2014. – **Invited talk**

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- [74] V. Kuzmenko, A. Saleem, O. Naboka, H. Staaf, G. Göransson, M. Haque, **V. Desmaris**, P. Gatenholm och P. Enoksson, "Carbon nanotubes/nanofibers composites from cellulose for supercapacitors", Proceedings of the 16th European Conference on Composite Materials, ECCM 2014; Seville; Spain; June 2014, 2014.
- [75] M. Qureshi, **V. Desmaris**, M. Geurts och J. Van De Sluis, "Passive Reciprocal high-pass/low-pass 4-bit phase shifter at 2.45 GHz", Proceedings of the European Microwave Conference, Rome, Italy, 2014.
- [76] H. Rashid, **V. Desmaris**, A. Pavolotsky och V. Belitsky, "Towards quantum limited frequency multiplication" (International Conference on Infrared, Millimeter, and Terahertz Waves, IRMMW-THz), 2014.
- [77] A. Saleem, S. Rahiminejad, **V. Desmaris** och P. Enoksson, "Carbon nanotubes as base material for fabrication of gap waveguide components", *Procedia Engineering* 80, p 931-934, 2014.
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- [79] Kuzmenko, A. Saleem, A. Bhaskar, H. Staaf, **V. Desmaris** och P. Enoksson, "Hierarchical cellulose-derived carbon nanocomposites for electrostatic energy storage" (15th International Conference on Micro and Nanotechnology for Power Generation and Energy Conversion Applications), 2015
- [80] H. Rashid, **V. Desmaris**, A. Pavolotsky och V. Belitsky, "Metamaterial-Like Properties of the Distributed SIS Tunnel Junction" (The 26th International Symposium on Space Terahertz Technology), 2015.
- [81] P. Yadranjee Aghdam, H. Rashid, A. Pavolotsky, **V. Desmaris**, D. Meledin och V. Belitsky, "On Specific Capacitance of SIS Junctions" (The 26th International Symposium on Space Terahertz Technology), 2015.
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- [84] A.M.Saleem, V. Kuzmenko, **V. Desmaris**, P. Enoksson, "development of supercapacitor based on carbon nanostructures as electrode materials", Micronano System Workshop, MSW, Lund, Sweden, 2016

- [85] H. Rashid, **V. Desmaris**, A. Pavolotsky, V. Belitsky, “Experimental Verification Of The Pumping Of SIS Mixer With An Distributed SIS Frequency Doubler”, Infrared and Millimeter wave and TeraHertz Conference, Copenhagen, 2016.

3. Patents

- [86] “Deposition and Selective Removal of Conducting Helplayer for Nanostructure Processing”, patent 200980106183.2, filed 2009-02-20, **Granted**
- [87] “Deposition and Selective Removal of Conducting Helplayer for Nanostructure Processing”, patent 09715679.8, filed 2009-02-20, **Granted**
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