

**Table 6: Publications and Presentation Activity**

The following list contains all publications based on research funded directly from VINNOVA grant or cash contributions, or indirectly via in kind contributions from Chalmers or companies in Chase. References marked with \* denotes closely related research performed at Chalmers and funded by other projects not counted as in kind. The citations were taken from “Google Scholar”, 2014-06-06.

**Project “Sensor Systems”****Sensor Systems: PhD theses**

- [P1] Xuezhi Zeng, “Time Domain Systems for Microwave Imaging: Accuracy Evaluations and Prototype Design”, PhD-thesis at Chalmers, 2013-11-15.
- [P2] Oskar Talcoth. ”Electromagnetic Modeling and Sensitivity-Based Optimization of Medical Devices,” PhD-thesis at Chalmers, 2014-01-24.

**Sensor Systems: Licentiate theses**

- [L1] Yinan Yu, ”Classification of High Dimensional Signals with Small Training Sample Size with Applications towards Microwave Based Detection Systems” Lic. Eng. Thesis, 2013-06-12.

**Sensor Systems: Master theses**

- [M1] Johan Klingstedt Gustav Mårtensson, ”Design av Kalmanfilter för signalbehandling av antensvar från riktade mikrovågsantennerna” Bachelor of Science Thesis, 2012.
- [M2] Malik Ahzaz Ahmad, ”Detecting traumatic intracranial bleedings in a brain phantom using microwave technology” 2012.
- [M3] Martina Johansson, “Design and development of a Stroke Cap for Monitoring of Transient Ischemic Attacks” 2012.
- [M4] Seyedeh Shaghayegh Fayazi, “Development of an Ultra Wide-Band (UWB) Synthetic Aperture Radar (SAR) System for Imaging of Near Field Object”, Umea University, Sweden, Master of Science Thesis 2012.
- [M5] R Samo, P Saraswat, ”Microwave technology for detection of traumatic pneumothorax - Development of wearable antenna array and evaluation of thoracic phantom,” 2013.
- [M6] T Dunås, M Kildal Schilliger, ”Detection of traumatic epidural and subdural haematomas in brain phantoms using microwave technology,” 2013.
- [M7] S Li, ”Fast Imaging Reconstruction in Microwave Tomography for Stroke Diagnosis,” 2013.
- [M8] Clas Andersson, ”Multivariate Signal Approaches for Object Detection using Microwave Sensing,” 2013.
- [M9] G Risting, ”Optimisation of sensor positions for electromagnetic sensor systems”, 2013.
- [M10] Q Yian, ”Application Development on compact UWB radar systems”, 2013.

**Sensor Systems: Journal articles**

- [J1] Shirin Abtahi, Jian Yang, and Stefan Kidborg, “A new compact multiband antenna for stroke diagnosis system over 0.5-3 GHz”, *Microwave and Optical Technology Lett.*, Vol. 54, No. 10, pp. 2342–2346, October 2012. (Citations: 6, Impact: 0.585, Industry co-authored: Yes)
- [J2] Fhager, Andreas; Gustafsson, Mats; Nordbo, Sven: Image Reconstruction in Microwave Tomography Using a Dielectric Debye Model. *IEEE Transactions on Biomedical Engineering*, 59 (1) pp. 156 – 166, 2012. (Citations: 10, Impact: 2.348, Industry co-authored: No)
- [J3] Lui, Hoi Shun; Fhager, Andreas; Persson, Mikael: On the Forward Scattering of Microwave Breast Imaging. *International Journal of Biomedical Imaging*, 2012, Article ID 582037, 2012. (Citations: 3, Impact: 0.000, Industry co-authored: No)

- [J4] X. Zeng, A Fhager , Z He , M Persson , P Linner , H Zirath, "Development of a Time Domain Microwave System for Medical Diagnostics," submitted to IEEE Trans. Instrumentation and Measurements, 2013. (Citations: 0, Impact: 1.357, Industry co-authored: No)
- [J5] X. Zeng, A Fhager, P Linnér, M. Persson, H. Zirath, "Design and Performance Evaluation of a Time Domain Microwave Imaging System" International Journal of Microwave Science and Technology, Article ID 735692, 2013. (Citations: 0, Impact: 0.000, Industry co-authored: No)
- [J6] A. Fhager, S. K. Padhi, M. Persson and J. Howard, "Antenna Modeling and Reconstruction Accuracy of Time Domain Based Image Reconstruction in Microwave Tomography," International Journal of Biomedical Imaging, vol. 2013, Article ID 343180, 2013. (Citations: 0, Impact: 0.000, Industry co-authored: No)
- [J7] O. Talcoth, G. Risting and T. Rylander , "Convex optimization of sensor positions in magnetic tracking based on sensor selection" Submitted to Optimization and Engineering, 2013. (Citations: 0, Impact: 0.825, Industry co-authored: No)
- [J8] Y. Shirvany, T. Rubaek, F. Edelvik, S. Jakobsson, O. Talcoth, M. Persson, "Evaluation of a finite-element reciprocity method for epileptic EEG source localization: accuracy, computational complexity and noise robustness", Biomedical Engineering Letters, vol. 3, pp. 8-16, 2013. (Citations: 1, Impact: 0.000, Industry co-authored: No)
- [J9] O Talcoth, T Rylander, " Sensor selection in magnetic tracking based on convex optimisation," Electronics Letters, vol. 49, pp. 15-16, 2013 (Citations: 0, Impact: 1.04, Industry co-authored: No)
- [J10] M Persson, A Fhager, H Dobsicek Trefna, Y Yu, T McKelvey, G Pegenius, J-E Karlsson, M Elam," Microwave-based stroke diagnosis making global pre-hospital thrombolytic treatment possible", accepted for publication in IEEE Trans. Biomedical Engineering, 2014. (Citations: 0, Impact: 2.348, Industry co-authored: Yes)
- [J11] Aidin Razavi and Jian Yang, "Optimal size of uniform aperture for near-field penetration through lossy medium", submitted to Microwave and Optical Technology Lett., Jan. 2014. (Citations: 0, Impact: 0.585, Industry co-authored: No)

#### **Sensor Systems: Conference papers**

- [C1] O. Talcoth and T. Rylander, "Modeling of a multi-scale electromagnetic problem: pacemaker lead heating in MRI". Proceedings of AntennEMB 2012, Stockholm, March 2012, p. 24. (Citations: 0, Industry co-authored: No)
- [C2] Jian Yang, Ahmed Kishk, Aidin, Yinan Yu, Tomas McKelvey. Borys Stoew, Shirin Abtahi, Stefan Kidborg, Ali Al-Rawi, "The new UWB self-grounded Bow-Tie antennas and the applications in Different Systems," Swedish Radio and Microwave Days 2012, RVK2012, Stockholm, 4-8 March 2012. (Citations: 0, Industry co-authored: Yes)
- [C3] O. Talcoth and T. Rylander, "Convex optimization of sensor positions for organ-positioning during radiotherapy". Proceedings of Medicinteknikdagarna 2012, Lund, October 2012, p. 87. (Citations: 0, Industry co-authored: No)
- [C4] P. Jensen, T. Rubaek, O. Talcoth, J. Mohr and N. Epstein, "Parameter scaling in non-linear microwave tomography". 2012 Loughborough Antennas & Propagation Conference, Loughborough, United Kingdom, 12-13 November 2012. (Citations: 0, Industry co-authored: No)
- [C5] Seyedeh Shaghayegh Fayazi, Hoi-Shun Lui, Jian Yang, "Ultra Wideband Microwave Imaging of Near-Field Objects using SAR Algorithm", IEEE International Symposium on Antennas and Propagation, Chicago, United States, July 8-13, 2012. (Citations: 4, Industry co-authored: No)

- [C6] Aidin Razavi and Jian Yang, "Investigation of penetration ability of UWB antennas in near-field sensing applications." Proceedings of 6th European Conference on Antennas and Propagation, EuCAP 2012. Prague, 26-30 March 2012, pp. 791-795. (Citations: 3, Industry co-authored: No)
- [C7] Xuezhi Zeng, Andreas Fhager, Mikael Persson, Peter Linner, and Herbert Zirath, "An ultra-wideband microwave medical diagnostic system: design considerations and system performance," presented in EuCAP 2012. (Citations: 0, Industry co-authored: No)
- [C8] X Zeng, A Fhager, M Persson, P Linnér, H Zirath, "An Ultrawideband Microwave Medical Diagnostic System: Design Considerations and System Performance," Proceedings of the 6th European Conference on Antennas and Propagation, Prague, Czech Republic, March 26-30, 2012. (Citations: 0, Industry co-authored: No)
- [C9] Fhager, Andreas; Persson, Mikael: Stroke detection and diagnosis with a microwave helmet. Proceedings of 6th European Conference on Antennas and Propagation, EuCAP 2012. Prague, 26-30 March 2012, pp. 1796-1798. (Citations: 5, Industry co-authored: No)
- [C10] Lui, Hoi Shun; Fhager, Andreas; Persson, Mikael: Preliminary Investigations of Three-Dimensional Microwave Tomography using Different Data Sets. Proceedings of 6th European Conference on Antennas and Propagation, EuCAP 2012. Prague, 26-30 March 2012, pp. 2196-2200. (Citations: 1, Industry co-authored: No)
- [C11] Lui, Hoi Shun; Fhager, Andreas; Persson, Mikael: Microwave Breast Imaging using Different Data Sets. Proceedings of AntennEMB, Stockholm, Sweden, 2012. (Citations: 0, Industry co-authored: No)
- [C12] S Candefjord, A. A. Malik, S. Kidborg, Y. Yu, T. McKelvey, A. Fhager, M. Persson, "Using microwave technology for detecting traumatic intracranial bleedings – tests on a brain phantom," Medicinteknikdagarna, Lund, Sweden, Oct 2-3, 2012. (Citations: 0, Industry co-authored: Yes)
- [C13] A. Fhager, "Microwave imaging system for breast cancer detection", Medicinteknikdagarna, Lund, Sweden, Oct 2-3, 2012. (Citations: 0, Industry co-authored: No)
- [C14] O Talcoth, G Risting, T Rylander, "Sensitivity Optimization for Electromagnetic Measurement Systems by Sensor Selection," Proceedings of the 7th European Conference on Antennas and Propagation, EUCAP 2013. Göteborg, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C15] M. Persson, A. Fhager, H. Dobsicek Trefna, T. McKelvey, "Microwave based diagnostics and treatment," Proceedings of the 7th European Conference on Antennas and Propagation, EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 1, Industry co-authored: No)
- [C16] A. Fhager, Y. Yu, T. McKelvey, M. Persson, "Stroke diagnostics with a microwave helmet," Proceedings of the 7th European Conference on Antennas and Propagation, EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 3, Industry co-authored: No)
- [C17] H-S Lui, A Fhager, J Yang, M Persson, "Characterization and Detection of Breast Cancer using Ultra Wideband Polarimetric Electromagnetic Transients," Proceedings of the 7th European Conference on Antennas and Propagation, EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C18] Aidin Razavi, Jian Yang and Tomas McKelvey, "Optimal aperture distribution of near-field antennas for maximum signal penetration", 7th Eur. Conf. on Antennas Propagat. (EuCAP2013), Gothenburg, 8-12 April 2013. (Citations: 0, Industry co-authored: No)

- [C19] Seyede Shaghayegh Fayazi, Jian Yang, Hoi-Shun Lui, “UWB SAR imaging of near-field object for industrial process applications”, 7th Eur. Conf. on Antennas Propagat. (EuCAP2013), Gothenburg, 8-12 April 2013. (Citations: 1, Industry co-authored: No)
- [C20] A Fhager, H-S Lui, M Persson, Reconstruction Strategies for Clinical Microwave Imaging - Matching liquid and a priori known reconstruction domain, PIERS, Stockholm, Sweden Aug 12-15, 2013. (Citations: 0, Industry co-authored: No)
- [C21] A Fhager, ”Microwave Imaging System under Development for Breast Cancer Detection,” Medicinteknikdagarna, Stockholm, Sweden, Oct 1-2, 2013. (Citations: 0, Industry co-authored: No)
- [C22] S Candefjord, J Wings, Y Yu, T Rylander, T McKelvey, ”Microwave technology for localization of traumatic intracranial bleedings—a numerical simulation study,” 5th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2013; Osaka; Japan; 3-7 July 2013. (Citations: 0, Industry co-authored: No)
- [C23] Y Tu, T McKelvey, ”A Unified Subspace Classification Framework Developed for Diagnostic System Using Microwave Signal,” 21st European Signal Processing Conference (EUSIPCO), September, Marrakech, Morocco, 2013. (Citations: 0, Industry co-authored: No)
- [C24] Rothe, R. ; Yu, Y. ; Kung, S., ”Parameter Design Tradeoff Between Prediction Performance and Training Time for Ridge-Svm,” IEEE International Workshop on Machine Learning for Signal Processing, Southampton, United Kingdom, September 22-25, 2013. (Citations: 0, Industry co-authored: No)
- [C25] Yu, Y. ; McKelvey, T. ; Kung, S., ”A Classification Scheme for 'High-Dimensional-Small-Sample-Size' Data Using SODA and Ridge-SVM with Microwave Measurement Applications,” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Vancouver, Canada. pp. 3542-3546, 2013. (Citations: 1, Industry co-authored: No)
- [C26] Yu, Y. ; McKelvey, T. ; Kung, S., Kernel SODA: A Feature Reduction Technique Using Kernel Based Analysis, The 12th International Conference on Machine Learning and Applications (ICMLA'13), 2013. (Citations: 0, Industry co-authored: No)
- [C27] Yu, Y. ; Diamantaras, K. I. ; McKelvey, T. et al., ”Ridge-Adjusted Slack Variable Optimization for Supervised Classification,” IEEE International Workshop on Machine Learning for Signal Processing, Southampton, United Kingdom, September 22-25, 2013. (Citations: 0, Industry co-authored: No)

### **Project “Over-the-Air Test Environments (OTA)”**

#### **OTA: PhD theses**

- [P1] X. Chen, “Characterization of MIMO Antennas and Terminals: Measurements in Reverberation Chambers”, PhD thesis, Chalmers University of Technology, May 2012.

#### **OTA: Licentiate theses**

- [L1] Ahmed Hussain, “Characterization of Small Antennas & Wireless Devices for MIMO Systems in Rich Isotropic Multipath & Random Line-of-Sight”, Licentiate thesis, Chalmers University of Technology, April 2013.

#### **OTA: Master theses**

- [M1] Erik Engvall, “Uncertainty models for reverberation chambers”, 8 June 2012 (Examiner: Per-Simon Kildal. The project was done at NIST, Boulder, USA with Chris Holloway as supervisor)
- [M2] Ali Al-Rawi, “A new Compact Wideband MIMO Antenna as the base station antenna for the reverberation chamber”, July 2012 (Supervisors: Jian Yang and Charlie Orlenius and Magnus Franzen from Bluetest), (Industry)

**OTA: Technical reports and book chapters**

- [R1] 3GPP R4-130556, "A Generic Ray-Based Rich 3D Isotropic (RIMP) Channel Model", C. Lötbäck Patané, P.-S. Kildal, January 2013., (Industry)
- [R2] 3GPP R4-125376, "Inter-Lab/Inter-Technique OTA Performance Comparison Testing for MIMO Devices – Bluetest Lab Report", C. Lötbäck Patané, October 2012., (Industry)
- [R3] 3GPP R4-120571, "Summary of the Bluetest Results and Learning Outcomes from the MIMO LTE Round Robin Measurement Campaign", C. Lötbäck Patané, C. Orlenius, February 2012., (Industry)
- [R4] 3GPP R4-122403, "MOSG Reference Antennas – Preliminary Results", C. Lötbäck Patané, C. Orlenius, May 2012., (Industry)
- [R5] R4-123788, "MOSG Reference Antennas – Results and Learning Outcomes from Initial Testing", C. Lötbäck Patané, July 2012., (Industry)
- [R6] CTIA MOSG130110, "A Generic Ray-Based Rich 3D Isotropic (RIMP) Channel Model", C. Lötbäck Patané, P.-S. Kildal, January 2013., (Industry)
- [R7] CTIA MOSG120205, "Summary of the Bluetest Results and Learning Outcomes from the MIMO LTE Round Robin Measurement Campaign", C. Lötbäck Patané, C. Orlenius, February 2012., (Industry)
- [R8] CTIA MOSG120206, "Summary of the Bluetest Results and Learning Outcomes from the MIMO LTE Round Robin Measurement Campaign – Additional Results", C. Lötbäck Patané, C. Orlenius, February 2012., (Industry)
- [R9] CTIA MOSG120516, "MOSG Reference Antennas – Preliminary Results", C. Lötbäck Patané, C. Orlenius, May 2012., (Industry)
- [R10] CTIA MOSG120703, "MOSG Reference Antennas – Results and Learning Outcomes from Initial Testing", C. Lötbäck Patané, July 2012., (Industry)
- [R11] CTIA MOSG121008, "Inter-Lab/Inter-Technique OTA Performance Comparison Testing for MIMO Devices – Bluetest Lab Report", C. Lötbäck Patané, October 2012., (Industry)

**OTA: Innovations**

- [I1] Jian Yang, Ali Al-Rawi, Magnus Franzén, Charlie Orlenius, "Self-grounded Antenna Arrangement", Swedish Patent Application SE-1251166-3, 2 October 2012., (Industry)

**OTA: Journal articles**

- [J1] P.-S. Kildal, C. Orlenius, J. Carlsson, "OTA Testing in Multipath of Antennas and Wireless Devices with MIMO and OFDM", Proceedings of the IEEE, Vol. 100, No. 7, pp. 2145-2157, July 2012. (Citations: 29, Impact: 6.810, Industry co-authored: Yes)
- [J2] P.-S. Kildal, X. Chen, C. Orlenius, M. Franzén, C. Lötbäck Patané, "Characterization of Reverberation Chambers for OTA Measurements of Wireless Devices: Physical Formulations of Channel Matrix and New Uncertainty Formula", IEEE Transactions on Antennas and Propagation, Vol. 60, No. 8, Aug. 2012. (Citations: 33, Impact: 2.332, Industry co-authored: Yes)
- [J3]\* J. Yang and A. Kishk, "A novel low-profile compact directional ultra-wideband antenna: the self-grounded Bow-Tie antenna", IEEE Trans. on Antennas Propag., vol. 60, no. 3, pp. 1214-1220, March 2012. (Citations: 29, Impact: 2.332, Industry co-authored: No)
- [J4] X. Chen, "Spatial Correlation and Ergodic Capacity of MIMO Channel in Reverberation Chamber", International Journal of Antennas and Propagation, Volume 2012, Article ID 939104. (Citations: 5, Impact: 0.68, Industry co-authored: No)
- [J5] P.-S. Kildal, U. Carlberg, J. Carlsson, "Definition of Antenna Diversity Gain in User-Distributed 3D-Random Line-Of-Sight", IEEE Antennas and Propagation Wireless Letters, February 2012. (Citations: 4, Impact: 1.667, Industry co-authored: No)

**OTA: Conference papers**

- [C1] C. Orlenius, C. Lötbäck Patané, A. Skårbratt, J. Åsberg, M. Franzén, “Analysis of MIMO OTA measurements for LTE terminals performed in reverberation chamber”, EuCAP 2012, 6th European Conference on Antennas and Propagation, 26-30 March 2012, Prague, Czech Republic. (Citations: 2, Industry co-authored: Yes)
- [C2] X. Chen, P-S. Kildal, J. Yang, J. Carlsson, “Capacity characterization of Eleven antenna in different configurations for MIMO applications using reverberation chamber”, EuCAP 2012, 6th European Conference on Antennas and Propagation, 26-30 March 2012, Prague, Czech Republic. (Citations: 1, Industry co-authored: No)
- [C3] P-S. Kildal, A. Hussain, G. Durisi, C. Orlenius, A. Skårbratt, “LTE MIMO multiplexing performance measured in reverberation chamber and accurate simple theory”, EuCAP 2012, 6th European Conference on Antennas and Propagation, 26-30 March 2012, Prague, Czech Republic. (Citations: 5, Industry co-authored: Yes)
- [C4] P-S. Kildal, C. Orlenius, U. Carlberg, “MIMO LTE OTA measurements in reverberation chamber: rich isotropic reference environment makes agreement with theoretical system model”, EuCAP 2012, 6th European Conference on Antennas and Propagation, 26-30 March 2012, Prague, Czech Republic. (Citations: 1, Industry co-authored: Yes)
- [C5] P-S. Kildal, C. Orlenius, “Theoretical Models for Improving OTA Measurement Quality of Throughput of LTE Devices with MIMO and OFDM in Reverberation Chamber”, 2012 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, 8-14 July 2012, Chicago, IL, USA. (Citations: 0, Industry co-authored: Yes)
- [C6] A. Hussain, P-S. Kildal, G. Durisi, “Modeling System Throughput of Single and Multi-Port Wireless LTE Devices”, 2012 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, 8-14 July 2012, Chicago, IL, USA. (Citations: 1, Industry co-authored: No)
- [C7] C. Orlenius, C. Lötbäck Patané, A. Skårbratt, J. Åsberg, P-S. Kildal, “Evaluation of Multi Element Antennas in Reverberation Chamber”, 2012 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, 8-14 July 2012, Chicago, IL, USA. (Citations: 0, Industry co-authored: Yes)
- [C8] E. Engvall, C. L. Holloway, J. M. Ladbury, and P.-S. Kildal, “A study of uncertainty models in a reverberation chamber at NIST”, 2012 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, 8-14 July 2012, Chicago, IL, USA. (Citations: 1, Industry co-authored: No)
- [C9] Per-Simon Kildal, "OTA-MIMO measurements in reverberation chamber: New Developments and Appropriate System Models including OFDM" invited keynote speaker, 2012 International Conference on Electromagnetics in Advanced Applications (ICEAA), Cape Town, WP, South Africa, 2-8 Sept 2012. (Citations: 0, Industry co-authored: No)
- [C10] Per-Simon Kildal, "OTA Characterization of Wireless Terminals in Rich Isotropic Multipath (RIMP) and pure-LOS", invited keynote speaker, XXVII Simposium Nacional de la Unión Científica Internacional de Radio, URSI 2012 (Spanish URSI), Elche, Spain, 12-14 September 2012. (Citations: 0, Industry co-authored: No)
- [C11]\* J. Carlsson, K. Karlsson, A. Johansson, “Validation of Shielding Effectiveness Measurement Method Using Nested Reverberation Chambers by Comparison with Aperture Theory”, EMC Europe 2012, 11th International Symposium on EMC, Rome, Italy, 17-21 Sept., 2012. (Citations: 0, Industry co-authored: No)

- [C12] J. Carlsson, U. Carlberg, P.-S. Kildal, "Diversity Gains in Random Line-Of-Sight and Rich Isotropic Multipath Environment", invited presentation, 2012 Loughborough Antennas & Propagation Conference (LAPC), Loughborough, England, 12-13 Nov., 2012. (Citations: 3, Industry co-authored: No)
- [C13] X. Chen, P.-S. Kildal, J. Carlsson, "Investigation of the Distribution of the Random LOS Component in a Reverberation Chamber", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C14] Ahmed Hussain, Per-Simon Kildal, Ulf Carlberg, Jan Carlsson, "Diversity Gains in Rich Isotropic Multipath Environment of 2-port Antenna on Mobile Phone in Talk Positions on Right & Left Side of the Head", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C15] Per-Simon Kildal and Jan Carlsson, "New Approach to OTA Testing: RIMP and pure-LOS as Extreme Environments & a Hypothesis", in convened session about OTA chaired by Jan Carlsson, Christian Lötbäck and Rodney Vaughan, 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 1, Industry co-authored: No)
- [C16] Christian Lötbäck Patané, Anton Skårbratt, Robert Rehammar, Charlie Orlenius, "On the Use of Reverberation Chambers for Assessment of MIMO OTA Performance of Wireless Devices", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: Yes)
- [C17] Robert Rehammar, Anton Skårbratt, Charlie Orlenius, "Measuring 4x4 MIMO capability in a reverberation chamber", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: Yes)
- [C18] John Kvarnstrand, Robert Rehammar, Anton Skårbratt, Christian Lötbäck Patané, "A Practical Method to Measure Total Radiated Power of a Mobile Device Handled by a Live Person", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: Yes)
- [C19] Ahmed Hussain, Per-Simon Kildal, "Study of OTA Throughput of 4G LTE Wireless Terminals for Different System Bandwidths and Coherence Bandwidths in Rich Isotropic Multipath", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C20] Ali Al-Rawi, Jian Yang, Charlie Orlenius and Magnus Franzén, "The Double-sided 4-port Bow-tie Antenna: A New Compact Wideband MIMO Antenna", 7th European Conference on Antennas and Propagation, Gothenburg, Sweden, 8-12 April 2013. (Citations: 2, Industry co-authored: Yes)
- [C21] A. Hussain, P.-S. Kildal, U. Carlberg, J. Carlsson, "Correlation Between Far-field Patterns on Both Sides of the Head of Two-port Antenna on Mobile Terminal", 2013 IEEE International Symposium on Antennas and Propagation, Orlando, USA, July 7-12, 2013. (Citations: 1, Industry co-authored: No)

**OTA: Articles in newspapers and magazines**

- [N1] "Bluetest testar wlanlänken" article in Elektroniktidningen nr. 2, February 2012 (news paper article about release of test instrument from spinoff company Bluetest).

## Project “Capacity Optimization of LTE Wireless Systems Using OTA Testing with Statistical User-Data (UserOTA)”

### UserOTA: PhD theses

- [P1] Xiaoming Chen, “Characterization of MIMO Antennas and Terminals: Measurements in Reverberation Chambers”, May 2012. Opponent: Prof Rodney Vaughan, Simon Frazer University, Canada.

### UserOTA: Licentiate theses

- [L1] Ahmed Hussain, “Characterization of Small Antennas & Wireless Devices for MIMO Systems in Rich Isotropic Multipath & Random Line-of-Sight”, Licentiate thesis, Chalmers, 19 April 2013. Opponent: Dr. Jonas Friden, Ericsson AB.

### UserOTA: Master theses

- [M1] Weiming Dong, “Methods for Measuring the Impact of Interference on Wireless De-vices in a Reverberation Test System”, September 2013 (Examiner: Per-Simon Kildal. Supervisors: Klas Arvidsson (Bluetest), Prof. Per-Simon Kildal (Chalmers), Ahmed Hussain (Chalmers)), (Industry)
- [M2] Bjarni Þór Einarsson, "Using USRP in Reverberation Chamber for Studying Throughput", May 2014 (Examiner: Per-Simon Kildal. Supervisors: Prof. Per-Simon Kildal (Chalmers), Ahmed Hussain (Chalmers)), Xiaoming Chen (Chalmers).

### UserOTA: Technical reports and book chapters

- [R1] 3GPP R4-130548, “SCME UMi and UMa Base Station Antenna Correlation and Resulting Data Throughput Performance”, Bluetest, January 2013., (Industry)
- [R2] 3GPP R4-130556, “A Generic Ray-Based Rich 3D Isotropic (RIMP) Channel Model”, Bluetest, P.-S. Kildal, Chalmers University of Technology, January 2013., (Industry)
- [R3] 3GPP R4-130570, “Verification of 3D Isotropic Channel Models using the Absolute Data Throughput Comparison Framework”, Bluetest, January 2013., (Industry)
- [R4] 3GPP R4-130075, “Text Proposal for TR 37.977 on the eNodeB Emulator Parameter Settings for LTE TDD”, CMCC, CATR, Agilent, Azimuth, Bluetest, Elektrobit, Rohde & Schwarz, January 2013., (Industry)
- [R5] 3GPP R4-130748, “Text Proposal for TR 37.977 on the Definition of 3D Isotropic Channel Models”, Azimuth Systems, Bluetest, EMITE, CTTC, Huawei, January 2013., (Industry)
- [R6] 3GPP R4-130749, “Text Proposal for TR 37.977 on the Verification Procedure for the 3D Isotropic Channel Models”, Azimuth Systems, Bluetest, EMITE, CTTC, January 2013., (Industry)
- [R7] 3GPP R4-130751, “ Text Proposal for TR 37.977 on the Reverberation methods”, Azimuth Systems, Bluetest, EMITE, CTTC, January 2013., (Industry)
- [R8] 3GPP R4-130764, “ Text Proposal for TR 37.977 on the Emulation of DUT Rotation in the Conducted Test of the Absolute Throughput Framework for 3D evaluation”, Azimuth Systems, Bluetest, EMITE, CTTC, January 2013., (Industry)
- [R9] CTIA MOSG130110, "A Generic Ray-Based Rich 3D Isotropic (RIMP) Channel Model", Bluetest, January 2013., (Industry)
- [R10] CTIA MOSG130103, "SCME UMi and UMa Base Station Antenna Correlation and Resulting Data Throughput Performance", Bluetest, January 2013., (Industry)
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- [J4] X. Chen, P. S. Kildal, J. Carlsson, and J. Yang, "MRC diversity and MIMO Capacity Evaluations of Multi-Port Antennas Using Reverberation Chamber and Anechoic Chamber," IEEE Transactions on Antennas and Propagation, vol. 61, no. 2, pp. 917-926, Feb. 2013. (Citations: 17, Impact: 2.332, Industry co-authored: No)

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**UserOTA: Conference papers**

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- [C2] P.-S. Kildal, C. Orlenius, U. Carlberg, "MIMO LTE OTA measurements in reverberation chamber: rich isotropic reference environment makes agreement with theoretical system model", *EuCAP2012 Prague, Czech Republic*, 26-30 March 2012. (Citations: 1, Industry co-authored: Yes)
- [C3] C. Orlenius, C. Lötbäck, A. Skårbratt, J. Åsberg and M. Franzén, "Analysis of MIMO OTA measurements for LTE terminals performed in reverberation chamber", *EuCAP2012 Prague, Czech Republic*, 26-30 March 2012. (Citations: 2, Industry co-authored: Yes)
- [C4] E. Engvall, C. L. Holloway, J. M. Ladbury, and P.-S. Kildal, "A study of uncertainty models in a reverberation chamber at NIST", *IEEE AP-S 2012, Chicago, USA*, July 8-14, 2012. (Citations: 1, Industry co-authored: No)
- [C5]\* A. Hussain, P.-S. Kildal and G. Durisi, "Modeling system throughput of single and multi-port wireless LTE devices", *IEEE AP-S 2012, Chicago, USA*, July 8-14, 2012. (Citations: 1, Industry co-authored: No)
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- [C8] P.-S. Kildal, and C. Orilenius, "Theoretical models for improving OTA measurement quality of throughput of LTE devices with MIMO and OFDM in reverberation chamber", USNC-URSI 2012, Chicago, July 8-14 2012. (Citations: 0, Industry co-authored: Yes)
- [C9] Per-Simon Kildal, "OTA Characterization of Wireless Terminals in Rich Isotropic Multipath (RIMP) and pure-LOS", invited keynote speaker at Spanish URSI, Elche, Spain, 12-14 September 2012. (Citations: 0, Industry co-authored: Yes)
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- [C13] A. Hussain and P. Kildal, "Study of OTA throughput of LTE terminals for different system bandwidths and coherence bandwidths," 2013 7th European Conference on Antennas and Propagation (EuCAP2013), Gothenburg, April 2013. (Citations: 4, Industry co-authored: No)
- [C14] Ahmed Hussain, Per-Simon Kildal, Ulf Carlberg, Jan Carlsson, "Diversity Gains in Rich Isotropic Multipath Environment of 2-port Antenna on Mobile Phone in Talk Positions on Right & Left Side of the Head", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C15] Christian Lötbäck Patané, Anton Skårbratt, Robert Rehammar, Charlie Orilenius, "On the Use of Reverberation Chambers for Assessment of MIMO OTA Performance of Wireless Devices", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: Yes)
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- [C19]\* Charlie Orilenius, "The Bluetest story: the 12 years from a crazy idea to commercial success", (the author is at Bluetest AB, member of Chase research center at Chalmers, and the paper is about the commercial success of research at Chalmers), EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 1, Industry co-authored: Yes)
- [C20] A. Hussain, P.-S. Kildal, U. Carlberg, J. Carlsson, "Correlation Between Far-field Patterns on Both Sides of the Head of Two-port Antenna on Mobile Terminal", ISAP 2013, Nanjing, China, October 23-25, 2013. (Citations: 1, Industry co-authored: No)

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- [C26] Bjarni Thor Einarsson, Ahmed Hussain and Per-Simon Kildal, "Measurements of relative Throughput in Reverberation Chamber using Universal Software Radio Peripheral", EuCAP 2014, The Hague, The Netherlands 6-11 April 2014. (Citations: 0, Industry co-authored: No)
- [C27]\* Mattias Gustafsson, Chen Xiaoming, Per-Simon Kildal, "OTA Characterization of mBTS Antenna in RIMP and Random-LOS", EuCAP 2014, The Hague, The Netherlands 6-11 April 2014. (Citations: 0, Industry co-authored: No)
- [C28] Per-Simon Kildal, "Small Isotropic Antenna with Directivity of 4.8 dBi as a Reference Case for Use in Random-LOS with MIMO Technology", USNC-URSI Radio Science Meeting, Memphis, Tennessee, USA, July 6-12, 2014. (Citations: 0, Industry co-authored: No)
- [C29] X. Chen, A. Hussian, and P.-S. Kildal, "Over-the-air LTE measurements in the reverberation chamber," 31th URSI General Assembly and Scientific Symposium, Beijing, China, 16-23 Aug. 2014 (Citations: 0, Industry co-authored: No)
- [C30] X. Chen and P.-S. Kildal, "Validation of uncertainty model for reverberation chamber measurements," 31th URSI General Assembly and Scientific Symposium, Beijing, China, 16-23 Aug. 2014. (Citations: 0, Industry co-authored: No)
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- [N2]\* “Forskare boostar 4G (Researchers boost 4G)”, article in Computer Sweden, 8 Nov. 2012, <http://computersweden.idg.se/2.2683/1.475842/forskare-boostar-4g> (about collaboration between Chalmers and Huawei) , (Industry)
- [N3]\* C.-H. Walde, "The History of Antennas in Sweden", submitted to IEEE Antennas and Propagation Magazine, June 2013, seven pages long article including also industrial products and spin-offs (hat antennas and reverberation chambers) resulting from Prof. Kildal's research group at Chalmers.
- [N4]\* "Bluetest - Från grundforskning till framgångsrik produkt", Framtidens Forkning, June 2013 (about the OTA research of Kildal that resulted in the commercial success of Bluetest AB)., (Industry)
- [N5]\* P.-S. Kildal, J. Carlsson, S. Sjödin, "EuCAP 2013 in Gothenburg, Sweden: “An Impressive Success”", IEEE Antennas and Propagation Magazine, Vol. 55, No. 3, pp. 276-278, June 2013.
- [N6]\* “Huawei i nytt hett project med Chalmers (Huawei in new hot project with Chalmers)”, Swedish technical weekly magazine Ny Teknik, 30 Nov. 2013, [http://www.nyteknik.se/nyheter/it\\_telekom/allmant/article3789152.ece?utm\\_source=apsis&utm\\_medium=nyhetsbrev&utm\\_content=unspecified&utm\\_campaign=unspecified](http://www.nyteknik.se/nyheter/it_telekom/allmant/article3789152.ece?utm_source=apsis&utm_medium=nyhetsbrev&utm_content=unspecified&utm_campaign=unspecified), (Industry)
- [N7]\* “S2 in media: Marianna Ivashina and Eleven feed on television 18 February”, Note in S2 News about the TV interview in Swedish Television’s local news channel Hallandsnytt in 18 February 2014 entitled “Makes key-components to large radio telescope” (in Swedish "Gör nyckelkomponent till stort radioteleskop: <http://www.svt.se/nyheter/regionalt/hallandsnytt/gor-nyckelkomponent-till-stort-radioteleskop>)
- [N8]\* Similar TV interview in TV4 news Halland in 24 February 2014 entitled “Researcher look for the stars” (in Swedish "Forskare siktar mot stjärnorna”): <http://www.tv4.se/nyheterna/klipp/forskare-siktar-mot-stj%C3%A4rnorna-2558629>

**Project “Multi-Antenna Technologies for Wireless Access and Backhaul (MATWAB)”**
**MATWAB: PhD theses**

- [P1] Nima Seifi, “Base station coordination in multicell MIMO networks”, Ph.D. thesis, Chalmers University of Technology, March 2012.
- [P2] Panagiota Lioliou, “Channel estimation and self-interference suppression for MIMO relaying systems”, Ph.D. thesis, Chalmers University of Technology, April 2012.

**MATWAB: Licentiate theses**

- [L1] Jingya Li, “Resource Allocation in Downlink Coordinated Multi-Point Systems”, Licentiate thesis, Chalmers University of Technology, Feb 2013.
- [L2] Tilak Rajesh Lakshmana, “Efficient Backhauling in Cooperative MultiPoint Cellular Networks”, Licentiate thesis, Chalmers University of Technology, March 2013.

**MATWAB: Master theses**

- [M1] Vetriselvam Gopal, “Inverse-Gaussian distribution: A new shadowing model and its application to communication systems”, M.Sc. thesis, Chalmers University of Technology, June 2012.
- [M2] Johan Nygårdh, “A study on frequency reuse in microwave radio link networks”, M.Sc. thesis, Linköping University, January 2013.

- [M3] Sven Jacobsson, "1-bit massive MIMO", M.Sc. Thesis, Chalmers University of Technology/Ericsson AB, Aug 2014, (Industry)

**MATWAB: Journal articles**

- [J1] M. Matthaiou and C. Zhong, "Low-SNR analysis of MIMO Weibull fading channels," *IEEE Communications Letters*, vol. 16, no. 5, pp. 694–697, May 2012. (Citations: 3, Impact: 1.16, Industry co-authored: No)
- [J2]\* M. Matthaiou, G. C. Alexandropoulos, H. Q. Ngo, and E. G. Larsson, "Analytic framework for the effective rate of MISO fading channels," *IEEE Transactions on Communications*, vol. 60, no. 6, pp. 1741–1751, June 2012. (Citations: 9, Impact: 1.677, Industry co-authored: No)
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- [J9] M. Matthaiou, A. Papadogiannis, E. Björnson, and M. Debbah, "Two-way relaying under the presence of relay transceiver hardware impairments," *IEEE Communications Letters*, vol. 17, no. 6, pp. 1136–1139, June 2013. (Citations: 1, Impact: 1.16, Industry co-authored: No)
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- [J21] J Li, M Matthaiou, T Svensson "I/Q Imbalance in Two-Way AF Relaying," *IEEE Transactions on Communications*, 2014, to appear (Citations: 0, Impact: 1.677, Industry co-authored: No)

**MATWAB: Conference papers**

- [C1] N. Seifi, M. Coldrey, M. Matthaiou, and M. Viberg, "Impact of base station antenna tilt on the performance of network MIMO systems," in *Proc. IEEE Vehicular Technology Conference (VTC)*, Yokohama, Japan, May 2012. (Citations: 2, Industry co-authored: Yes)
- [C2]\* M. Matthaiou, G. C. Alexandropoulos, H. Q. Ngo, and E. G. Larsson, "Effective rate analysis of MISO Rician fading channels," in *Proc. IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, Hoboken, NJ, U.S.A., June 2012, pp. 53-56. (Citations: 1, Industry co-authored: No)
- [C3] C. Zhong, M. Matthaiou, A. Huang, and Z. Zhang, "On the sum rate of MIMO Nakagami-m fading channels with MMSE receivers," in *Proc. IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, Hoboken, NJ, U.S.A., June 2012, pp. 49-52. (Citations: 0, Industry co-authored: No)
- [C4] M. Matthaiou, C. Zhong, M. R. McKay, and T. Ratnarajah, "Sum rate analysis of ZF receivers in distributed MIMO systems with Rayleigh/Lognormal fading," in *Proc. IEEE International Conference on Communications (ICC)*, Ottawa, ON, Canada, June 2012. (Citations: 1, Industry co-authored: No)
- [C5] M. Coldrey, H. Koorapaty, J.-E. Berg, Z. Ghebretensaé, J. Hansryd, A. Derneryd, S. Falahati, "Small-cell wireless backhauling: A non-line-of-sight approach for point-to-point microwave links," in *Proc. IEEE Vehicular Technology Conference (VTC)*, Québec City, Canada, September 2012. (Citations: 5, Industry co-authored: Yes)

- [C6] P. Lioliou, D. Svensson, and M. Viberg, "Channel tracking for AF MIMO relaying systems," in Proc. IEEE Vehicular Technology Conference (VTC), Québec City, Canada, September 2012. (Citations: 0, Industry co-authored: No)
- [C7] H. Q. Ngo, M. Matthaiou, and E. G. Larsson, "Performance analysis of large scale MU-MIMO with optimal linear receivers," in Proc. IEEE Swedish Communication Technologies Workshop (Swe-CTW), Lund, Sweden, October 2012. (Citations: 2, Industry co-authored: No)
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- [C9] V. Gopal, M. Matthaiou, and C. Zhong, "Performance analysis of distributed MIMO systems in Rayleigh/Inverse-Gaussian fading channels," in Proc. IEEE Global Communications Conference (GLOBECOM), Anaheim, CA, December 2012. (Citations: 0, Industry co-authored: No)
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- [C11]\* B Makki, J Li, T Eriksson, T Svensson, "Coordinated Multi-point Joint Transmission with Partial Channel Information Feedback," European Wireless April 2013. (Citations: 1, Industry co-authored: No)
- [C12] Lakshmana, T. R. ; Li, J. ; Botella, C. et al. (2013). Scheduling for Backhaul Load Reduction in CoMP, IEEE Wireless Communications and Networking Conference (WCNC'2013), Shanghai, China , April, 2013. (Citations: 0, Industry co-authored: No)
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- [C25] T. R. Lakshmana, B. Makki, T. Svensson, “Frequency Allocation in Non-Coherent Joint Transmission CoMP Networks”, IEEE International Conference on Communications, Small cells workshop, ICC 2014, Sydney, Australia, June 2014. (Citations: 0, Industry co-authored: No)
- [C26] N. Seifi, R. W. Heath Jr., M. Coldrey, and T. Svensson, “Joint Transmission Mode and Tilt Adaptation in Coordinated Cellular Networks”, to appear in Proc. of IEEE International Conference on Communications (ICC), Sydney, Australia, June 2014. (Citations: 0, Industry co-authored: Yes)
- [C27] X. Zhang, M. Matthaiou, E. Björnsson, M. Coldrey, M. Debbah, “On the MIMO capacity with residual transceiver hardware impairments”, to appear in Proc. of IEEE International Conference on Communications (ICC), Sydney, Australia, June 2014. (Citations: 0, Industry co-authored: Yes)
- [C28] X. Zhang, M. Matthaiou, M. Coldrey, E. Björnsson, ”Impact of residual transmit RF impairments on training-based MIMO systems”, to appear in Proc. of IEEE International Conference on Communications (ICC), Sydney, Australia, June 2014. (Citations: 0, Industry co-authored: Yes)

### **Project “Antenna Systems for V2X Communication (V2X)”**

#### **V2X: Licentiate theses**

- [L1]\* W. Sun, “On Clock Synchronization in Wireless Networks Using Parameter Estimation and Consensus Techniques,” Lic. Eng. thesis, Chalmers University of Technology, Gothenburg, Sweden, Nov. 2013, Main supervisor: Prof. E. Ström, co-supervisor: Prof. F. Brännström.

- [L2]\* M. Ivanov, “On Bit-Wise Decoders for Coded Modulation,” Lic. Eng. thesis, Chalmers University of Technology, Gothenburg, Sweden, Nov. 2013, Main supervisor: Prof. E. Agrell, co-supervisor: Prof. F. Brännström, Prof. A. Graell i Amat, and Dr. A. Alvarado.

#### V2X: Master theses

- [M1]\* Linus Conradson and Daniel Horstmark, “Joint multi link behaviour for V2X communication,” MSc. thesis, Chalmers University of Technology, Gothenburg, Sweden, Nov. 2013, Examiner: Erik Ström.

#### V2X: Innovations

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#### V2X: Journal articles

- [J1]\* P.-S. Kildal, C. Orlenius, and J. Carlsson, “OTA Testing in Multipath of Antennas and Wireless Devices with MIMO and OFDM,” invited paper, Proceedings of the IEEE, vol. 100, issue 7, pp. 2145-2157, Jul. 2012. (Citations: 29, Impact: 6.810, Industry co-authored: Yes)
- [J2] K. Karlsson, X. Chen, J. Carlsson, and A. Skårbratt, “On OTA Test in the Presence of Doppler Spreads in a Reverberation Chamber,” IEEE Antennas and Wireless Propagation Letters, vol. 12, pp. 886-889, 2013. (Citations: 0, Impact: 1.667, Industry co-authored: Yes)
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- [J4]\* M. Ivanov, F. Brännström, A. Alvarado, and E. Agrell, “On the exact BER of bit-wise demodulators for one-dimensional constellations,” IEEE Transactions on Communications, vol. 61, no. 4, pp. 1450–1459, Apr. 2013 (Citations: 2, Impact: 1.677, Industry co-authored: No)
- [J5]\* A. Alvarado, A. Graell i Amat, F. Brännström, and E. Agrell, “On optimal TCM encoders,” IEEE Transactions on Communications, vol. 61, no. 6, pp. 2178–2189, June 2013. (Citations: 1, Impact: 1.677, Industry co-authored: No)
- [J6]\* P.-S. Kildal, U. Carlberg, J. Carlsson, “Definition of Antenna Diversity Gain in User-Distributed 3D-Random Line-Of-Sight,” Journal of Electromagnetic Engineering and Science (JEES), vol. 13, no. 2, pp. 86-92, Jun. 2013. (Citations: 4, Impact: 0.152, Industry co-authored: No)
- [J7]\* W. Sun, E. G. Ström, F. Brännström, and M. R. Gholami, “Random broadcast based distributed consensus clock synchronization for mobile networks,” submitted to IEEE Transactions on Wireless Communications, Nov. 2013. (Citations: 0, Impact: 2.418, Industry co-authored: No)
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#### V2X: Conference papers

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- [C2] K. Karlsson, C. Bergenheim and E. Hedin, “Field Measurements of IEEE 802.11p Communication in NLOS Environments for a Platooning Application”, IEEE 76th Vehicular Technology Conference: VTC2012-Fall, Québec City, Canada, 3-6 September, 2012. (Citations: 2, Industry co-authored: No)

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- [C4]\* M. Ivanov, F. Brännström, A. Alvarado, and E. Agrell, “General BER expression for onedimensional constellations,” in Proc. IEEE Global Telecommunications Conference (GLOBECOM ’12), Anaheim, CA, Dec. 2012. (Citations: 3, Industry co-authored: No)
- [C5]\* W. Sun, F. Brännström, and E. G. Ström, “On clock offset and skew estimation with exponentially distributed delays,” in Proc. IEEE International Conference on Communications (ICC), Budapest, Hungary, June 2013. (Citations: 0, Industry co-authored: No)
- [C6] Erik G. Ström “On 20 MHz channel spacing for V2X communication based on 802.11 OFDM,” in Proc. Annual Conference of the IEEE Industrial Electronics Society, Nov. 2013. (Citations: 0, Industry co-authored: No)
- [C7]\* Tristan Gaugel, Jens Mittag, Hannes Hartenstein, Stylianos Papanastasiou, and Erik G. Ström, “In-depth analysis and evaluation of self-organizing TDMA,” in Proc. IEEE Vehicular Networking Conference (VNC), Dec. 2013. (Citations: 1, Industry co-authored: No)
- [C8]\* W. Sun, M. R. Gholami, E. G. Ström, and F. Brännström, “Distributed clock synchronization with application of D2D communication without infrastructure,” in Proc. IEEE Global Telecommunications Conference (GLOBECOM), Atlanta, GA, Dec. 2013. (Citations: 0, Industry co-authored: No)
- [C9] E. C. Neira, U. Carlberg, J. Carlsson, K. Karlsson, and E. G. Ström, “Evaluation of V2X antenna performance using a multipath simulation tool,” EuCAP, 8th European Conference on Antennas and Propagation, The Hague, The Netherlands, 6-11 Apr., 2014. (Citations: 0, Industry co-authored: No)
- [C10]\* K. Karlsson, J. Carlsson, M. Olbäck, T. Vukusic, R. Whiton, S. Wickström, G. Ledfelt, J. Rogö, “Utilizing Two-Ray Interference in Vehicle-to-Vehicle Communications,” EuCAP, 8th European Conference on Antennas and Propagation, The Hague, The Netherlands, 6-11 Apr., 2014. (Citations: 0, Industry co-authored: Yes)
- [C11] Sajjad Beygi, Erik G. Ström, and Urbashi Mitra, “Geometry-based stochastic modeling and estimation of vehicle to vehicle channels,” in Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing, May 2014. (Citations: 0, Industry co-authored: No)
- [C12] K. K. Nagalapur, F. Brännström, and Erik G. Ström, “On channel estimation for 802.11p in highly time-varying vehicular channels,” in Proc. IEEE International Conference on Communications (ICC), Sydney, Australia, June 2014. (Citations: 0, Industry co-authored: No)
- [C13] S. Beygi, E. G. Ström, and U. Mitra, “Structured sparse approximation via generalized regularizers: with application to V2V channel estimation,” to appear in IEEE Global Telecommunications Conference (GLOBECOM ’14), Austin, TX. (Citations: 0, Industry co-authored: No)
- [C14] T. Gaugel, J. Mittag, H. Hartenstein, E. G. Ström, “Understanding differences in MAC performance,” to appear at IEEE WoWMoM Workshop on Smart Vehicles: Connectivity Technologies and ITS Applications, Jun., 2014. (Citations: 0, Industry co-authored: No)

#### V2X: Articles in newspapers and magazines

- [N1]\* E. G. Ström and T. Svensson, “Bilar skapar 5G-nät,” in Ny Teknik, Wednesday Jan. 22, 2014, pp. 14-15.
- [N2]\* E. G. Ström, “Tekniken bakom 5G,” in Elektroniktidningen, Tuesday May 14, 2014, pp. 14-15, [etn.se/58765](http://etn.se/58765).

## Project “Gap Waveguide Frontend Demonstrator”

### Gap Waveguide Frontend Demonstrator: PhD theses

- [P1] Ashraf Uz Zaman, “Gap Waveguide: Low Loss Microwave Passive Components and MMIC Packaging Technique for High Frequency Application”, June 2013. Opponent: Prof Ke Wu, École Polytechnique Montréal, Canada.
- [P2] Elena Pucci, “Gap Waveguide Technology for Millimeter Wave Applications and Integration with Antennas”, November 2013. Opponent: Prof Ronan Sauleau, University of Rennes 1, France
- [P3] Hasan Raza, “EM Design for New Ultra Wide Band Technologies: Eleven Feed Baluns, Bowtie Antennas and Gap Waveguides”, February 2014. Opponent: Prof. Guy Vandenbosch, KUL, Leuven, Belgium.

### Gap Waveguide Frontend Demonstrator: Licentiate theses

- [L1] Astrid Algaba Brazález, “Gap Waveguide for Packaging Microstrip Filters and Investigation of Transitions from Planar Technologies to Ridge Gap Waveguides”, Licentiate thesis, Chalmers, 27 May 2013. Opponent: Professor Mariano Baquero Escudero, Polytechnic University of Valencia, Spain.

### Gap Waveguide Frontend Demonstrator: Master theses

- [M1]\* Pegah Takook, “Fast Analysis of Gap Waveguides using the Characteristic Basis Function Method and Advanced Green's Function Approaches”, June 2012 (Examiner: Per-Simon Kildal. Rob Maaskant was the supervisor, 60p thesis).
- [M2]\* Ioannis Papageorgiou, “Investigation and design of high gain, low sidelobe, compact antennas at E-band”, June 2012 (Examiner: Per-Simon Kildal. The project was done at Ericsson with Anders Derneryd and Lars Manholm as supervisors)., (Industry)
- [M3] Farid Hadavy, “High gain waveguide slot array antenna for 60GHz point-to-point communication”, March 2014 (Examiner and supervisor: Jian Yang) , (Industry)

### Gap Waveguide Frontend Demonstrator: Innovations

- [I1] P.-S. Kildal, “Contactless flanges and shielded probes”, European patent application EP12168106.8, 15 May 2012. Owner is Gapwaves AB., (Industry)
- [I2] P.-S. Kildal, A. Kishk, E. Rajo, “Packaging active and passive microwave circuits using a grid of planar conducting elements on a grid of vertically arranged substrates”, patent application number PCT/EP2012/061150, 13 June 2012. Owner is Gapwaves AB., (Industry)
- [I3]\* Sjoerd Fredrik John Haasl, Jan Peter Enoksson, Per-Simon Kildal, “Fabrication method for high-frequency components”, provisional US patent application, number 61661252, 18 June 2012. Owner is Gapwaves AB., (Industry)
- [I4] Farid Hadavy, Stefan Carlsson, Per-Simon Kildal, Lars-Inge Sjöqvist, “Rectangular waveguides and Gap Waveguides using Pin Grid Array (PGA) and Ball Grid Array (BGA) Technologies”, patent application EP 14168282.3, 14 May 2014. Owner is Gapwaves AB., (Industry)

### Gap Waveguide Frontend Demonstrator: Journal articles

- [J1] E. Pucci, E. Rajo-Iglesias, P.-S. Kildal, “New Microstrip Gap Waveguide on Mushroom-Type EBG for Packaging of Microwave Components”, IEEE Microwave and Wireless Components Letters, Vol. 22, No. 3, pp. 129-131, March 2012. (Citations: 14, Impact: 1.913, Industry co-authored: No)
- [J2]\* A. Kishk, A. Uz Zaman, P.-S. Kildal, "Numerical Prepackaging with PMC lid - Efficient and Simple Design Procedure for Microstrip Circuits including the Packaging", ACES Applied Computational Electromagnetics Society journal, Vol. 27, No. 5, May 2012. (Citations: 9, Impact: 0.90, Industry co-authored: No)

- [J3] A. Algaba Brazález, A. Uz Zaman, P.-S. Kildal, "Improved Microstrip Filters Using PMC Packaging by Lid of Nails", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 2, No. 7, July 2012. (Citations: 14, Impact: 1.261, Industry co-authored: No)
- [J4] S. Rahiminejad, A.U. Zaman, E. Pucci, H. Raza, V. Vassilev, S. Haasl, P. Lundgren, P.-S. Kildal, P. Enoksson, *Micromachined Ridge Gap Waveguide and Resonator for Millimeter-Wave Applications, Sensors & Actuators: A. Physical*, October 2012. (Citations: 11, Impact: 2.084, Industry co-authored: No)
- [J5] E. Rajo-Iglesias, P.-S. Kildal, A.U. Zaman and A. Kishk, "Bed of Springs for packaging of microstrip circuits in the microwave frequency range", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 2, No. 10, October 2012. (Citations: 6, Impact: 1.261, Industry co-authored: No)
- [J6] A. U. Zaman, A. Kishk, and P.-S. Kildal, "Narrow-band microwave filter using high Q groove gap waveguide resonators without sidewalls", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 2, No. 11, pp. 1882-1889, November 2012. (Citations: 19, Impact: 1.261, Industry co-authored: No)
- [J7] E. Alfonso Alos, A. U. Zaman, and Per-Simon Kildal, "Ka-band Gap Waveguide Coupled-Resonator Filter for Radio Link Diplexer Application", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 3, No. 5, pp. 870-879, May 2013. (Citations: 6, Impact: 1.261, Industry co-authored: No)
- [J8] E. Rajo-Iglesias, E. Pucci, A. Kishk, and P.-S. Kildal, "Suppression of parallel plate modes for low frequency microstrip circuit packaging using lid of printed zigzag wires", *IEEE Microwave and Wireless Components Letters*, Vol. 23, No. 7, July 2013. (Citations: 2, Impact: 1.913, Industry co-authored: No)
- [J9] E. Pucci, A. U. Zaman, E. Rajo-Iglesias, P.-S. Kildal and A. Kishk, "Study of Q-Factors of Ridge and Groove Gap Waveguide Resonators", *IET Microwaves, Antennas & Propagation*, Vol. 7, No. 11, pp. 900-908, August 2013. (Citations: 12, Impact: 0.836, Industry co-authored: No)
- [J10] Jian Yang and Hasan Raza, "Empirical formulas for designing gap-waveguide hybrid ring coupler", *Microwave and Optical Technology Letters*, Vol. 55, No. 8, pp. 1917-1920, August 2013. (Citations: 4, Impact: 0.585, Industry co-authored: No)
- [J11] H. Raza, J. Yang, P.-S. Kildal, E. Alfonso, "Resemblance Between Gap Waveguides and Hollow Waveguides", *IET Microwaves, Antennas & Propagation*, Volume 7, Issue 15, p. 1221 – 1227, 10 December 2013. (Citations: 4, Impact: 0.836, Industry co-authored: No)
- [J12] A.U. Zaman, T. Vukusic, M. Alexanderson, P.-S. Kildal, "Design of a simple transition from microstrip to ridge gap waveguide suited for MMIC and antenna integration", *IEEE Antennas and Wireless Propagation Letters*, Vol. 12, pp. 1558 – 1561, 2013. (Citations: 0, Impact: 1.667, Industry co-authored: Yes)
- [J13] H. Raza, J. Yang, P.-S. Kildal and E. Alfonso, "Microstrip-Ridge Gap Waveguide – Study of Losses, Bends and Transition to WR-15", accepted for publication in *IEEE Transactions on Microwave Theory and Techniques*, May 2014. (Citations: 0, Impact: 2.229, Industry co-authored: No)
- [J14] S. A. Razavi, P.-S. Kildal, L. Xiang and E. Alfonso, "2×2-slot Element for 60GHz Planar Array Antenna Realized on Two Doubled-sided PCBs Using SIW Cavity and EBG-type Soft Surface fed by Microstrip-Ridge Gap Waveguide", submitted to *IEEE Transactions on Antennas and Propagation*, December 2013. (Citations: 0, Impact: 2.332, Industry co-authored: No)

- [J15] A.U. Zaman, T. Vukusic, M. Alexanderson, P.-S. Kildal, "Gap Waveguide PMC Packaging for Improved Isolation of Circuit Components in High Frequency Microwave Modules", IEEE Transactions on Components, Packaging and Manufacturing Technology, Vol. 4, Issue 1, p. 16 – 25, 2014. (Citations: 7, Impact: 1.261, Industry co-authored: Yes)
- [J16] A. U. Zaman and P. S. Kildal, "Wideband slot antenna array with single-layer corporate feednetwork in ridge gap waveguide technology", accepted for publication in IEEE Transactions on Antennas and Propagation, January 2014. (Citations: 0, Impact: 2.332, Industry co-authored: No)
- [J17]\* M. Sharifi Sorkherizi, A. Khaleghi, and P.-S. Kildal, "Direct-Coupled Cavity Filter in Ridge Gap Waveguide", IEEE Transactions on Components, Packaging and Manufacturing Technology, Vol.4, no.3, pp-490-495, March 2014. (Citations: 0, Impact: 1.261, Industry co-authored: No)
- [J18] E. Pucci, E. Rajo-Iglesias, J.-L. Vazquez-Roy and P.-S. Kildal, "Planar Dual-Mode Horn Array with Corporate-Feed Network in Inverted Microstrip Gap Waveguide", accepted for publication in IEEE Transactions on antennas and propagation Antennas and Propagation, May 2014. (Citations: 1, Impact: 2.332, Industry co-authored: No)
- [J19] E. Alfonso, P.-S. Kildal, "A parabolic cylinder antenna with a line feed realized in gap waveguide with a parabolic wall for 60 GHz", manuscript under preparation. (Citations: 0, Impact: ?, Industry co-authored: No)

#### Gap Waveguide Frontend Demonstrator: Conference papers

- [C1] A. U. Zaman and P.-S. Kildal, "Slot antenna in ridge gap waveguide technology", EuCAP2012 Prague, Czech Republic, 26-30 March 2012. (Citations: 7, Industry co-authored: No)
- [C2] E. Pucci and P.-S. Kildal, "Contactless non-leaking waveguide flange realized by bed of nails for millimeter wave applications", EuCAP2012 Prague, Czech Republic, 26-30 March 2012. (Citations: 2, Industry co-authored: No)
- [C3] H. Raza and J. Yang, "Compact UWB power divider packaged by using gap waveguide technology", EuCAP2012 Prague, Czech Republic, 26-30 March 2012. (Citations: 8, Industry co-authored: No)
- [C4] A. Algaba Brazález, A.U. Zaman, P.-S.Kildal, "Design of a coplanar waveguide-to-ridge gap waveguide transition via capacitive coupling", EuCAP2012 Prague, Czech Republic, 26-30 March 2012. (Citations: 0, Industry co-authored: No)
- [C5]\* M. Bosiljevac, Z. Sipus, and P.-S. Kildal, "Analytical modeling and experimental verification of coupling between transmission lines in gap-waveguides", EuCAP2012 Prague, Czech Republic, 26-30 March 2012. (Citations: 0, Industry co-authored: No)
- [C6] A. Algaba Brazález, A. U. Zaman, P.-S. Kildal, "Design of a microstrip-to-ridge gap waveguide transition via electromagnetic coupling", IEEE AP-S 2012, Chicago, USA, July 8-14, 2012. (Citations: 0, Industry co-authored: No)
- [C7] E. Pucci, E. Rajo-Iglesias, and P.-S. Kildal, "Evaluation of losses in microstrip gap waveguide for slot antennas applications", IEEE AP-S 2012, Chicago, USA, July 8-14, 2012. (Citations: 0, Industry co-authored: No)
- [C8]\* R. Maaskant, P. Takook, and P.-S. Kildal, "Fast analysis of gap waveguides using the characteristic basis function method and the parallel-plate Green's function", ICEAA 2012, Cape Town, WP, South Africa, 2-8 Sept 2012. (Citations: 2, Industry co-authored: No)
- [C9] E. Alfonso Alós, P.-S Kildal, "Ka-band gap waveguide coupled-resonator filter for radio link diplexers", Spanish URSI, Elche, Spain, 12-14 September 2012. (Citations: 0, Industry co-authored: No)



- [C10] E. Alfonso, A. U. Zaman, E. Pucci and P.-S. Kildal, "Gap waveguide components for millimeter-wave systems. Couplers, filters, antennas, MMIC packaging", ISAP 2012, Oct 29-Nov. 2 2012, Nagoya, Japan. (Citations: 0, Industry co-authored: No)
- [C11] Jian Yang, "The SWE Antenna – A New Wideband Thin Planar Antenna for 60GHz Communications", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 1, Industry co-authored: No)
- [C12] Esperanza Alfonso, Per-Simon Kildal, "Parabolic cylindrical reflector antenna at 60 GHz with line feed in gap waveguide technology", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C13] Ashraf Uz Zaman, P.-S. Kildal, "Linear Slot Array Design in Ridge Gapwaveguide Technology", Convened session "Gap waveguides and SIW antennas" Chaired by Eva and Jiro Hirokawa, EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C14] Hasan Raza, Jian Yang, Per-Simon Kildal, "Study of the Characteristic Impedance of Gap Waveguide Microstrip Line", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C15]\* Sofia Rahiminejad, Hasan Raza, Ashraf Uz Zaman, Sjoerd Haasl, Peter Enoksson, Per-Simon Kildal, "Micromachined Groove Gap Waveguides for 100 GHz applications", Convened Session on "Terahertz Science and Technology: Antennas, Detectors, and Systems" chaired by Nuria Ljombart and Goutam Chattopadhyay, EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C16]\* Z. Sipus, M. Bosiljevac, P.-S. Kildal, "Evaluation of cross-coupling inside gap-waveguides", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C17]\* M. Bosiljevac, Z. Sipus, P.-S. Kildal, "Near-field characteristics of amended DB boundary conditions", EuCAP 2013, Gothenburg, Sweden, 8-12 April 2013. (Citations: 0, Industry co-authored: No)
- [C18]\* A. Algaba Brazález, E. Pucci, S. Rahiminejad, M. Ferndahl, P.-S. Kildal, "Evaluation of losses of the ridge gap waveguide at 100 GHz", IEEE AP-S 2013, Orlando, USA, July 7-12, 2013. (Citations: 0, Industry co-authored: No)
- [C19] E. Pucci, E. Rajo-Iglesias, J.-L. Vazquez-Roy and P.-S. Kildal, "Design of a four-element horn antenna array fed by inverted microstrip gap waveguide", IEEE AP-S 2013, Orlando, USA, July 7-12, 2013. (Citations: 0, Industry co-authored: No)
- [C20] Jian Yang, Ali Razavi Parizi, "A New E-plane Bend for SIW Circuits and Antennas Using Gapwave Technology", ISAP 2013, Nanjing, China, October 23-25, 2013. (Citations: 0, Industry co-authored: No)
- [C21] Per-Simon Kildal, "Gap Waveguides and PMC Packaging: Octave Bandwidth mm- and submm-Wave Applications of Soft & Hard Surfaces, EBGs and AMCs", invited speaker at APMC 2013, Coex, Seoul, Korea, November 5-8, 2013. (Citations: 0, Industry co-authored: No)
- [C22] Astrid Algaba Brazález, Eva Rajo Iglesias and Per-Simon Kildal, "Investigation of Transitions for Use in Inverted Microstrip Gap Waveguide Antenna Arrays", EuCAP 2014, The Hague, The Netherlands 6-11 April 2014. (Citations: 0, Industry co-authored: No)
- [C23] Ashraf Uz Zaman and P.-S. Kildal, "60GHz Slot-Array Antenna Design Based on Gap Waveguide Cavity and Gap Waveguide Feed Layer", EuCAP 2014, The Hague, The Netherlands 6-11 April 2014. (Citations: 0, Industry co-authored: No)

- [C24] Seyed Ali Razavi , Per-Simon Kildal, Liangliang Xiang, Haiguang Chen, Esperanza Alfonso, “Design of 60GHz Planar Array Antennas Using PCB-based Microstrip-Ridge Gap Waveguide and SIW”, EuCAP 2014, The Hague, The Netherlands 6-11 April 2014. (Citations: 0, Industry co-authored: No)
- [C25] Per-Simon Kildal, "Metasurfing Since 1987 – A Personal Story Involving Soft and Hard Surfaces, EBG Surfaces, Cloaking, Gap Waveguides and Mass Production", URSI Radio Science Meeting, Memphis, Tennessee, USA, July 6-12, 2014. (Citations: 0, Industry co-authored: No)
- [C26] Per-Simon Kildal, "Gap Waveguides Outperforms Lowloss Microstrip Lines with a Factor 4 in Distribution Networks for Large Planar Arrays at 60 Ghz", URSI Radio Science Meeting, Memphis, Tennessee, USA, July 6-12, 2014. (Citations: 0, Industry co-authored: No)

#### **Gap Waveguide Frontend Demonstrator: Articles in newspapers and magazines**

- [N1] “Sivers i millimetervågs-samarbete med Gapwaves (Sivers in millimeterwave-collaboration with Gapwaves)”, Elektroniktidningen, 6 maj 2014, mentioning also that Gapwaves originate from Prof Kildal’s research. Sivers IMA is a company in Kista, Sweden., (Industry)

#### **Project “Microwave Hyperthermia”**

##### **Microwave Hyperthermia: Licentiate theses**

- [L1] Yujia Jing, “Characterization of supported lipid membranes towards the development of nano-sized drug carriers for hyperthermia applications”, Licentiate thesis, Chalmers University of Technology. 2013

##### **Microwave Hyperthermia: Master theses**

- [M1] M. Ahlstrand, S. Johansson, S. Schillinger Kildal, P. Lövinger, S. Nilsson, S. Syrous, ”Design av antensystem för hypertermibehandling av hjärntumörer”, Bachelor thesis, Jun 2012. Examiner Andreas Fhager, supervisors Hana Dobsicek Trefna, Johanna Gellermann.
- [M2] H. Masud, “Towards Quality Assured Hyperthermia Treatment Delivery” Master thesis, Feb 2013. Examiner Andreas Fhager, supervisor Hana Dobsicek Trefna.
- [M3] Sohil Shahabi Ghahfarokhi, ”Development of a wideband high power amplifier for cancer treatment” Master thesis, University of Gävle, Examiner: Daniel Rönnow, Supervisor: Christian Fager, Hana Dobsicek Trefna.
- [M4] J. Jonsson B Vessman J Wanemark E. Woxlin L. Adelback, A Hjalmarsson. “Hypertermibehandling av hjärntumorer hos barn”. Bachelor's Thesis. Jun 2013, Examiner Andreas Fhager, supervisors Hana Dobsicek Trefna.
- [M5] S. Grettve, H. Kvistberg, A. Landberg, M. Lundgren, D. Renborg, “Positionering och fixering av cancerpatient vid behandling med mikrovågshypertermi: I behandlingsområdet hals och huvud”, Bachelor's Thesis. Jun 2013, Examiner Andreas Fhager, supervisors Hana Dobsicek Trefna.
- [M6] Cristina Rigato, “Design of hyperthermia applicator for head and neck tumour treatment: a simulation study”, Master thesis, Feb 2013. Examiner Andreas Fhager, supervisor Hana Dobsicek Trefna.
- [M7] Yousef Gouda, “Microwave-based temperature monitoring: Sensitivity to temperature changes”, Master thesis, Feb 2013. Examiner Andreas Fhager, supervisor Hana Dobsicek Trefna.

##### **Microwave Hyperthermia: Journal articles**

- [J1] Hana Dobšiček Trefná, Paolo Togni, Reza Shiee, Jan Vrba, Mikael Persson, ”Design of a wideband multi-channel system for time reversal hyperthermia”, International Journal of Hyperthermia, 28 ( 2 ) s. 175-183, 2012. (Citations: 8, Impact: 2.591, Industry co-authored: No)

- [J2] Jing, Yujia; Dobsicek Trefna, Hana; Persson, Mikael; Kasemo, Bengt; Svedhem, Sofia, "Formation of supported lipid bilayers on silica: transition temperature and liposome size", *Soft Matter*, 10 ( 1 ) s. 187-195. (Citations: 0, Impact: 3.909, Industry co-authored: No)
- [J3] M Persson, A Fhager, H Dobsicek Trefna, Y Yu, T McKelvey, G Pegenius, J-E Karlsson, M Elam, "Microwave-based stroke diagnosis making global pre-hospital thrombolytic treatment possible", accepted for publication in *IEEE Trans. Biomedical Engineering*, 2014. (Citations: 0, Impact: 2.348, Industry co-authored: Yes)
- [J4] A. Fhager, H. Dobsicek Trefna, Y. Gouda, M. Persson, "Microwave based diagnostics and treatment in practice" submitted to *IEEE MTT*, 2014. (Citations: 0, Impact: 2.229, Industry co-authored: No)

#### **Microwave Hyperthermia: Conference papers**

- [C1] Hana Dobšíček Trefná, Azeem Imtiaz, Hoi-Shun Lui, Tonny Rubæk, Mikael Persson, "Evolution of an UWB antenna for hyperthermia array applicator", 6th European Conference on Antennas and Propagation, Prague, Czech Rep, Mar 2012. (Citations: 0, Industry co-authored: No)
- [C2] Hana Dobšíček Trefná, Johanna Gellermann, "Frequency dependent focusing with UWB hyperthermia applicator for H&N cancer treatment", *ICHO and JCTM 2012*, Kyoto, Japan, 28 – 31 Sep, 2012. (Citations: 0, Industry co-authored: No)
- [C3] Hana Dobšíček Trefná, Pegah Takook, Johanna Gellermann, Jian Yang, Shirin Abtahi, Mikael Persson, "Numerical evaluation of clinical applicator for microwave hyperthermia treatment of Head & Neck tumors", 7th European Conference on Antennas and Propagation, Gothenburg, 2013. (Citations: 0, Industry co-authored: No)
- [C4] M. Persson, A. Fhager, H. Dobšíček Trefná, T McKelvey, "Microwave based diagnostics and treatment", 7th European Conference on Antennas and Propagation, Gothenburg, 2013. (Citations: 1, Industry co-authored: No)
- [C5] H. Dobšíček Trefná, P. Takook, J. Gellermann, B. Lannering, K. Blomgren, M. Persson, "Focused microwave hyperthermia of pediatric brain cancer: A preliminary simulation study", 28th Annual Meeting, European Society for Hyperthermia Onchology (ESHO), Munich, Germany, 2013. (Citations: 0, Industry co-authored: Yes)
- [C6] P. Takook, H. Dobšíček Trefná, M. Persson, "Compact wideband antenna for deep hyperthermia applicator", 28th Annual Meeting, European Society for Hyperthermia Onchology (ESHO), , Munich, Germany, June 2013. (Citations: 0, Industry co-authored: No)
- [C7] H. Dobšíček Trefná, P. Takook, J. Gellermann, M. Persson, "Applicator för mikrovågsbaserad behandling av huvud- och halstumörer", *Medicinteknikdagarna*, Stockholm, 2014. (Citations: 0, Industry co-authored: No)
- [C8] P. Takook, H. Dobšíček Trefná, M. Persson, "Compact wideband antenna for microwave hyperthermia system" *Medicinteknikdagarna*, Stockholm, 2014. (Citations: 0, Industry co-authored: No)
- [C9] H. Dobšíček Trefná, J. Jonsson B Vessman J Wanemark E. Woxlin, A Hjalmarsson. L. Adelback, P. Takook, J. Gellermann, B. Lannering, K. Blomgren, M. Persson "Antenna applicator for microwave hyperthermia treatment of pediatric brain cancer", 8th European Conference on Antennas and Propagation, de Haag, 2014. (Citations: 0, Industry co-authored: Yes)
- [C10] Hana Dobšíček Trefná, Pegah Takook, Cristina Rigato, Johanna Gellermann, Mikael Persson, "Microwave hyperthermia treatment of head and neck tumors", *EMB 2014*, Gothenburg. (Citations: 0, Industry co-authored: No)

- [C11] H. Dobšiček Trefná, C. Rigato, P. Kok, J. Gellermann, H. Crezee, M. Persson, "Applicator for head and neck tumor treatment: effect of frequency variation and patient positioning", accepted for publication in ESHO 2014, Turin, June, 2014. (Citations: 0, Industry co-authored: No)
- [C12] H. Dobšiček Trefná, "Technical requirements and quality assurance for superficial heating", invited talk, in ESHO 2014, Turin, June, 2014. (Citations: 0, Industry co-authored: No)

### Project "Next Generation Array Antennas (NGAA)"

#### NGAA: Master theses

- [M1]\* Nizamudin Hussain, Performance Limitations and Estimates for Infinite Array Antennas, Master Thesis, KTH, pp1-78, 2013-12-20, (Industry)

#### NGAA: Technical reports and book chapters

- [R1] Springer book chapter (invited): R. Maaskant, "Fast Analysis of Periodic Antennas and Metamaterial-Based Waveguides" Book title: "Computational Electromagnetics – Recent Advances and Engineering Applications", pp. 75-109, 2014, Editor: Prof. Raj Mittra, ISBN: 978-1-4614-4381-0
- [R2] Anders Derneryd and Patrik Persson, "Base Station Array Antenna Requirements," August 2012., (Industry)
- [R3] Mattias Viberg, "Specification for a Multibeam Antenna", U-ANTD-SPC-1079556-RSE, RUAG Space AB, Göteborg, July 2012., (Industry)
- [R4] Christos Kolitsidas, Literature review: Wideband/Multiband Antenna Arrays for Base Station Applications, pp 1-36, 2013.
- [R5] Carlo Bencivenni, Aperiodic Arrays - Literature review, May 28, 2013, pp.20.

#### NGAA: Journal articles

- [J1] R. Maaskant, M. V. Ivashina, S. J. Wijnholds, and K. F. Warnick, "Efficient Prediction of Array Element Patterns Using Physics-Based Expansions and a Single Far-Field Measurement, IEEE Trans. Antennas and Propagation, vol. 60, no.8, pp. 3614—3621, Aug. 2012. (Citations: 11, Impact: 2.332, Industry co-authored: No)
- [J2] S. J. Wijnholds, M. V. Ivashina, R. Maaskant, and K. F. Warnick, "Polarimetry with Phased Array Antennas: Sensitivity and Polarimetric Performance using Unpolarized Sources for Calibration", IEEE Trans. Antennas and Propagation, vol. 60, no.10, pp. 4688—4698, Oct. 2012. (Citations: 10, Impact: 2.332, Industry co-authored: No)
- [J3] M. Gustafsson, M. Cismasu and B.L.G. Jonsson, "Physical Bounds and Optimal Currents on Antennas, IEEE Trans. Antennas and Propagation, vol 60 no 6, pp 2672—2681, June 2012. (Citations: 26, Impact: 2.332, Industry co-authored: No)
- [J4] M. Gustafsson and B. L. G. Jonsson, Stored Electromagnetic Energy and Antenna Q, 2013. ArXiv:1211.5521v2 (Citations: 12, Impact: ?, Industry co-authored: No)
- [J5] A. Young, R. Maaskant, M. V. Ivashina, D. I. L. de Villiers, and D. B. Davidson, "Accurate Beam Prediction Through Characteristic Basis Function Patterns", IEEE Trans. Antennas and Propagation, Vol. 61, No 5, May, 2013. (Citations: 0, Impact: 2.332, Industry co-authored: No)
- [J6] A. Young, M. V. Ivashina, R. Maaskant, O. A. Iupikov, and D. B. Davidson, "Improving the Calibration Efficiency of an Array Fed Reflector Antenna through Constrained Beamforming, IEEE Trans. Antennas and Propagation, Vol. 61, No 7, July, 2013. (Citations: 2, Impact: 2.332, Industry co-authored: No)

- [J7] B.L.G. Jonsson, C.I. Kolitsidas, N. Hussain, “Array Antenna Limitations”, *IEEE Antennas and Wireless Propagation Letters*, 12(1) pp.1539--1542, Nov. 2013. (Citations: 1, Impact: 1.667, Industry co-authored: No)
- [J8] A. Yaghjian, M. Gustafsson, B.L.G. Jonsson, “Minimum Q for lossy and lossless electrically small dipole antennas”, *Progress in Electromagnetics Research* 143, pages 641--673, 2013. (Citations: 0, Impact: 5.298, Industry co-authored: No)
- [J9] D. S. Prinsloo, R. Maaskant, M. V. Ivashina, P. Meyer, ‘Mixed-Mode Sensitivity Analysis of a Combined Differential and Common Mode Active Receiving Antenna Providing Near-Hemispherical Field-of-View Coverage’, accepted to *IEEE Trans. Antennas and Propagation*, 2014. (Citations: 0, Impact: 2.332, Industry co-authored: No)
- [J10] D. J. Ludick, R. Maaskant, D. B. Davidson, U. Jakobus, and D. I. L. de Villiers, “Efficient Analysis of Large Aperiodic Antenna Arrays Using the Domain Green’s Function Method”, *IEEE Trans. Antennas and Propagation*, vol. 62, no.4, pp. xx—xx, Apr. 2014. (Citations: 0, Impact: 2.332, Industry co-authored: No)
- [J11] C. Bencivenni, M. V. Ivashina, R. Maaskant, and J. Wettergren, ‘Design of Maximally Sparse Array Antennas in the Presence of Mutual Coupling’, submitted to *IEEE AWPL*, March 2014. (Citations: 0, Impact: 1.67, Industry co-authored: Yes)

#### NGAA: Conference papers

- [C1] R. Maaskant, M. Ivashina, “Characteristic Basis Function Patterns – A Novel Expansion Method for the Fast and Accurate Prediction of Antenna Array Beams,” *International Conference on Electromagnetics in Advanced Applications*, (invited) Cape Town, South Africa, 2-7 Sept. 2012, pp. 796-799. (Best paper award nomination) (Citations: 4, Industry co-authored: No)
- [C2] A. Young, R. Maaskant, M. Ivashina, and D. Davidson, “Performance Evaluation of Far-Field Patterns for Radio Astronomy Applications Through the Jacobi-Bessel Series,” *International Conference on Electromagnetics in Advanced Applications*, (invited) Cape Town, South Africa, 2-7 Sept. 2012, pp. 884-887. (Citations: 2, Industry co-authored: No)
- [C3] O. Iupikov, R. Maaskant, and M. Ivashina, “Towards the understanding of the interaction effects between reflector antennas and phased array feeds,” *International Conference on Electromagnetics in Advanced Applications*, (invited) Cape Town, South Africa, 2-7 Sept. 2012, pp. 792-795. (Citations: 2, Industry co-authored: No)
- [C4] A. Young, R. Maaskant, M.V. Ivashina, D.B. Davidson, D.I.L. de Villiers, O.A. Iupikov, ‘Improving Beam Patterns Estimation for Future Radio Telescopes’, *South African Annual Square Kilometer Array Conference*, Cape Town, South Africa, Dec., 2012.(Best paper award) (Citations: 0, Industry co-authored: No)
- [C5] C. Kolitsidas and B. L. G. Jonsson, “Investigation of Compensating the Ground Plane Effect Through Array’s Inter-element Coupling”. *European Conference on Antennas and Propagation (EuCAP)*, Gothenburg, Sweden, Apr. 2013. (Citations: 0, Industry co-authored: No)
- [C6] B. L. G. Jonsson and M. Gustafsson, “Stored energies for electric and magnetic currents with applications to Q for small antennas”, *2013 International Symposium on Electromagnetic Theory (EMTS 2013)*. Hiroshima, Japan May 2013. (Citations: 1, Industry co-authored: No)
- [C7] C. Bencivenni, M. V. Ivashina, and R. Maaskant, “Aperiodic Array Antennas for Future Satellite Systems “,” *European Conference on Antennas and Propagation (EuCAP)*, Gothenburg, Sweden, Apr. 2013. (Citations: 0, Industry co-authored: No)
- [C8] C.I. Kolitsidas, B.L.G. Jonsson, “A study of partial resonance control for edge elements in a finite array”, *Progress in Electromagnetics Research Symposium*, 2013. (Citations: 1, Industry co-authored: No)

- [C9] B.L.G. Jonsson, "Stored Energies and Antenna Q, Electric and Magnetic Case", (invited) Progress in Electromagnetic Research Symposium 2013. (Citations: 0, Industry co-authored: No)
- [C10] B.L.G. Jonsson, "Applications of Electromagnetic stored energy for antennas", Waves in Science and Engineering, Oxaca, Mexico, Nov 2013. (Citations: 0, Industry co-authored: No)
- [C11] D.S. Prinsloo, P. Meyer, M.V. Ivashina, R. Maaskant, 'A Quad-Mode Antenna for Accurate Polarimetric Measurements Over an Ultra-Wide Field-Of-View', accepted for publication the European Conference on Antennas and Propagation (EuCAP2014), 6-11 April, The Hague, The Netherlands, 2014. (Citations: 0, Industry co-authored: No)
- [C12] T. S. Beukman, M. V. Ivashina, R. Maaskant, P. Meyer, C. Bencivenni, 'A Quadradial Feed for Ultra-Wide Bandwidth Quadruple-Ridged Flared Horn Antennas', In Proc. of the European Conference on Antennas and Propagation (EuCAP2014), 6-11 April, The Hague, The Netherlands, 2014. (Citations: 0, Industry co-authored: No)
- [C13] R. Maaskant, C. Bencivenni, M. V. Ivashina, 'Characteristic Basis Function Analysis of Large Aperture-Fed Antenna Arrays', In Proc. of the European Conference on Antennas and Propagation (EuCAP2014), 6-11 April, The Hague, The Netherlands, 2014. (Citations: 0, Industry co-authored: No)
- [C14] A.D. Yaghjian, M. Gustafsson and B.L.G. Jonsson, "Quality Factor for Lossy (and Lossless) Antennas", In Proc. of the European Conference on Antennas and Propagation (EuCAP2014), 6-11 April, The Hague, The Netherlands, 2014. (Citations: 0, Industry co-authored: No)
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