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Publikationer

Modeling Nonlinear Dynamics of Functionalization Layers: Enhancing Gas Sensor Sensitivity for Piezoelectrically Driven Microcantilever

Nsubuga, L., Duggen, L., Balzer, F., Høgh, S. O., Marcondes, T. L., Greenbank, W., de Oliveira Hansen, R. & Rubahn, H-G., 15. apr. 2024, I: ACS Sensors.

Gas adsorption response of piezoelectrically driven microcantilever beam gas sensors: analytical, numerical, and experimental characterizations

Nsubuga, L., Duggen, L., Marcondes, T. L., Overgaard Høegh, S., Lofink, F., Meyer, J., Rubahn, H-G. & de Oliveira Hansen, R., feb. 2023, I: Sensors. 23, 3, 22 s., 1093.

Deep ensemble-based classifier for transfer learning in rotating machinery fault diagnosis

Pacheco, F., Drimus, A., Duggen, L., Cerrada, M., Cabrera, D. & Sanchez, R. V., 2022, I: IEEE Access. 10, s. 29778-29787

Design and Manufacturing Considerations of a Constant-Force Mechanism for Low Force Regimes

Popa, A-A., Duggen, L., Nowakowski, O. K. & Holmetoft Lyder, A., 2022, *Additive Manufacturing, Modeling Systems and 3D Prototyping*. Rossi, E. & Di Nicolantonio, M. (red.). AHFE International, Bind 34. s. 69-75

A Conformal, Optimized 3D Printed Kneepad with Deformation Sensing

Popa, A. A., Drimus, A., Macdonald, E. W. & Duggen, L., 2021, I: IEEE Access. 9, s. 126873-126881

Shape Optimization of an Open Photoacoustic Resonator

El-Busaidy, S. A. S., Baumann, B., Wolff, M. & Duggen, L., 2021, I: Applied Sciences. 11, 6, 11 s., 2571.

Towards Printing Mechatronics: 3D-printed conductive interfacing for digital signals

Popa, A-A., Duggen, L. & Jouffroy, J., jul. 2020, *Proceedings of the 2020 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. s. 430-435 9159016

3D printed elastomeric lattices with embedded deformation sensing

Carradero Santiago, C., Randall-Posey, C., Popa, A. A., Duggen, L., Vuksanovich, B., Cortes, P. & MacDonald, E., 1. jan. 2020, I: IEEE Access. 8, s. 41394-41402 8998189.

3D Printed Hybrid Flexible Electronics with Direct Light Synthesis

Popa, A-A., Zellers, B., Iversen, S., Kennedy, D., Cortes, P., Duggen, L., Jouffroy, J., Rogers, K., Conner, B. & MacDonald, E., 2020, *Advances in Additive Manufacturing, Modeling Systems and 3D Prototyping - Proceedings of the AHFE 2019 International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping: Proceedings of the AHFE 2019 International Conference on Human Factors and Systems Interaction*. Di Nicolantonio, M., Rossi, E. & Alexander, T. (red.). Springer, s. 83-92 (Advances in Intelligent Systems and Computing, Bind 975).

Corrections to "3D printed elastomeric lattices with embedded deformation sensing": 3D Printed Elastomeric Lattices with Embedded Deformation Sensing (IEEE Access (2020) 8 (41394-41402) DOI:10.1109/ACCESS.2020.2973664)

Carradero Santiago, C., Randall-Posey, C., Popa, A-A., Duggen, L., Vuksanovich, B., Cortes, P. & MacDonald, E., 2020, I: IEEE Access. 8, s. 87184-87184

Modelling of open photoacoustic resonators

El-busaidy, S. A. S., Baumann, B., Wolff, M. & Duggen, L., 2020, I: *Photoacoustics*. 18, 8 s., 100161.

An Accurate Programmable Pulse Generator for Stepper Actuated Real-Time Control Systems

Ramezani, H., Torbensen, R., Duggen, L. & Jouffroy, J., 24. maj 2019, *Proceedings of the 2019 IEEE International Conference on Mechatronics, ICM 2019*. IEEE, s. 358-363

Experimental and numerical investigation of a photoacoustic resonator for solid samples: towards a non-invasive glucose sensor

El-busaidy, S. A. S., Baumann, B., Wolff, M., Duggen, L. & Bruhns, H., 2019, I: *Sensors*. 19, 13, 12 s., 2889.

Experimental evaluation of a method for simulation based learning for a multi-agent system acting in a physical environment

Qian, K., Brehm, R. W. & Duggen, L., 2019, *Proceedings of the 11th International Conference on Agents and Artificial Intelligence*. Rocha, A., Steels, L. & van den Herik, J. (red.). SCITEPRESS Digital Library, Bind 1: ICAART. s. 103-109

Towards Printing mechatronics: An optimized battery-powered 3D-printed coupling design

Popa, A. A., Duggen, L. & Jouffroy, J., 2019, *Proceedings of the 2019 IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM 2019*. IEEE, s. 418-423 8868575

Bio-inspired design and movement generation of dung beetle-like legs

Ignasov, J., Kapilavai, A., Filonenko, K., Larsen, J. C., Baird, E., Hallam, J., Büsse, S., Kovalev, A., Gorb, S. N., Duggen, L. & Manoonpong, P., 1. dec. 2018, I: *Artificial Life and Robotics*. 23, s. 555-563 9 s.

Towards Printing Mechatronics: Considerations for 3D-printed conductive coupling

Popa, A-A., Mai, C., Duggen, L. & Jouffroy, J., sep. 2018, *Proceedings of the 2018 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE, s. 827-832

Fourier collocation approach with mesh refinement method for simulating transit-time ultrasonic flowmeters under multiphase flow conditions

Simurda, M., Duggen, L., Basse, N. T. & Lassen, B., feb. 2018, I: *IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control*. 65, 2, s. 244-257

Mechanically bent graphene as an effective piezoelectric nanogenerator

Duggen, L., Willatzen, M. & Wang, Z. L., 2018, I: *The Journal of Physical Chemistry Part C*. 122, 36, s. 20581-20588

Acousto-optical phonon excitation in piezoelectric wurtzite slabs and crystal growth orientation effects

Duggen, L. & Willatzen, M., 4. maj 2017, I: *Semiconductor Science and Technology*. 32, 6, 7 s., 064001.

Acousto-optical phonon excitation in cubic piezoelectric slabs and crystal growth orientation effects

Duggen, L. & Willatzen, M., 30. jan. 2017, I: *Physical Review B*. 95, 3, 9 s., 035310.

A Fourier Collocation Approach for Transit-Time Ultrasonic Flowmeter Under Multi-Phase Flow Conditions

Simurda, M., Lassen, B., Duggen, L. & Basse, N. T., 2017, I: *Journal of Computational Acoustics*. 25, 4, 16 s., 1750005.

Bio-Inspired Design and Kinematic Analysis of Dung Beetle-Like Legs

Aditya, S. K. V., Ignasov, J., Filonenko, K., Larsen, J. C., Baird, E., Hallam, J., Büsse, S., Kovalev, A., Gorb, S., Duggen, L. & Manoonpong, P., 2017.

Induction motor model with imbalance and leakage saturation

Armah, K., Duggen, L. & Jouffroy, J., 2017, *Proceedings of the 2017 IEEE International Conference on Advanced Intelligent Mechatronics*. IEEE, s. 1520-1525

Modeling and identification of hysteresis with modified Preisach model in piezoelectric actuator

Song, X., Duggen, L., Lassen, B. & Mangeot, C., 2017, *Proceedings of the 2017 IEEE International Conference on Advanced Intelligent Mechatronics*. IEEE, s. 1538-1543

Plasmon Modes of Vertically Aligned Superlattices

Filonenko, K., Duggen, L. & Willatzen, M., 2017, *Proceedings of the 2017 Spring Symposium on Progress In Electromagnetics Research Symposium*. Chew, W. C., He, S. & He, S. (red.). IEEE, s. 2852-2857

Modeling Induction Motor Imbalances: A Non-DQ Approach

Armah, K., Jouffroy, J. & Duggen, L., 26. sep. 2016, *Proceedings of the IEEE International Conference on Advanced Intelligent Mechatronics*. IEEE Press, s. 769-774

A Theory of generalized Bloch oscillations

Duggen, L., Voon, L. C. L. Y., Lassen, B. & Willatzen, M., 20. apr. 2016, I: *Journal of Physics: Condensed Matter*. 28, 15, 8 s., 155301.

Modelling of transit-time ultrasonic flow meters under multi-phase flow conditions

Simurda, M., Duggen, L., Lassen, B. & Basse, N. T., 2016, *Proceedings of the 2016 IEEE International Ultrasonics Symposim*. IEEE Press, 6 s. (IEEE International Ultrasonics Symposium. Proceedings).

Hybrid Surface Plasmon Polariton Modes of Subwavelength Nanowire Resonators

Filonenko, K., Duggen, L. & Willatzen, M., 2015.

Purcell effect of asymmetric dipole source distributions in nanowire resonators

Filonenko, K., Duggen, L., Adam, J. & Willatzen, M., 2015. 1 s.

Bloch-Like Oscillations in Finite Quantum Structures

Duggen, L., Willatzen, M., Lassen, B., C., L. & Van Yoon, L., 2014.

Forces in Liquid Metal Contacts

Duggen, L. & Mátéfi-Tempfli, S., 2014, *ASME 2014: 12th Biennial Conference on Engineering Systems Design and Analysis : Engineering Systems; Heat Transfer and Thermal Engineering; Materials and Tribology; Mechatronics; Robotics*. American Society of Mechanical Engineers, Bind 3. 7 s. 20114. (Proceedings of the ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis ESDA 2014).

Near Infrared Photoacoustic Detection of Heptane in Synthetic Air

Duggen, L., Abu, M., Willatzen, M. & Rubahn, H-G., 1. mar. 2013, I: *Acta Acustica united with Acustica*. 99, 2, s. 317-322

Texture profile analysis of extruded fish feed: Graintec Problem, ESGI94, University of Southern Denmark

Borch, J., Duggen, L., Hall, C., Haubjerg, A. F., Lassen, B., Markovi'c, B., Rechenbach, B., Thulesen, T. & Veje, C., 2013, 4 s.

Laplace boundary-value problem in paraboloidal coordinates

Duggen, L., Willatzen, M. & C. Lew Yan Voon, L., 2012, I: *European Journal of Physics*. 33, s. 1-8

Modeling Frequency Response of Photoacoustic Cells using FEM for Determination of N-heptane Contamination in Air: Experimental Validation

Duggen, L., Abu, M., Willatzen, M. & Rubahn, H-G., 2012, I: *Journal of Systemics, Cybernetics and Informatics*. 10, 2, s. 108-110 3 s.

Electromechanical Fields in Quantum Heterostructures and Superlattices

Duggen, L. & Willatzen, M., okt. 2011, *Optoelectronics: Devices and Applications*. Predeep, P. (red.). InTech - Open Access Publisher, s. 419-444

Oil contamination photoacoustic sensor system

Radziwon, M. J., Abu, M., Duggen, L., Willatzen, M., Zweg, T. & Rubahn, H-G., 3. sep. 2011.

Modeling Frequency Response of Photoacoustic Cells using FEM for Determination of N-heptane: Experimental Validation

Duggen, L., Abu, M., Willatzen, M. & Rubahn, H-G., jul. 2011, *Proceedings of the 4th International Multi-Conference on Engineering and Technological Innovation*. Bind 2. s. 122-126

Finite Element Simulation of Photoacoustic Pressure in a Resonant Photoacoustic Cell Using Lossy Boundary Conditions

Duggen, L., Lopes, N., Willatzen, M. & Rubahn, H-G., 2011, I: *International Journal of Thermophysics*. 32, 4, s. 774-768
12 s.

Crystal orientation effects on wurtzite quantum well electromechanical fields

Duggen, L. & Willatzen, M., 2010, I: *Physical Review B (Condensed Matter and Materials Physics)*. 82, 20, s. 205303 8 s.

FEM analysis of cylindrical resonant photoacoustic cells

Duggen, L., Frese, R. & Willatzen, M., 2010, I: *Journal of Physics - Conference Series*. 214, 1, 5 s., 012036.

Crystal orientation effects on the piezoelectric field of strained zinc-blende quantum-well structures

Duggen, L., Willatzen, M. & Lassen, B., 21. nov. 2008, I: *Physical Review B*. 78, s. 205323