**Invited talks, publications and patents**

**Prof. Dr. Harald Schenk** (ORCID-ID: [0000-0002-8147-080X](https://orcid.org/0000-0002-8147-080X))

Status: April 2025

*List of invited talks*

1. **Micro actuators for light deflection and modulation**Bremen University, Bremen, Germany (2003)
2. **Photonic microsystems: An enabling technology for light deflection and modulation**SPIE Photonics West, MOEMS Display and Imaging Systems, San Jose, USA, DOI: 10.1117/12.523948 (2004)
3. **Microsystems for light processing**Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, Montreux, Switzerland (2005)
4. **Optical MEMS for advanced spectrometers**  
   Optical MEMS, Oulo, Finland, DOI: 10.1109/OMEMS.2005.1540106 (2005)
5. **Micro optical devices for light deflection and modulation**  
   Microsystems Technology Congress, Freiburg, Germany (2005)
6. **Micro scanning mirrors**  
   Swiss Federal Institute of Technology, Zurich, Switzerland (2006)
7. **2D micro scanner with high deflection for image acquisition**Microsystems Technology Congress, Dresden, Germany (2007)
8. **Single crystalline micro mirrors**  
   Sino-German Symposium „The Silicon Age“, Hangzhou, China (2008)
9. **Silicon based micro optical modulators**  
   MicroMechanics Europe Workshop, Aachen, Germany (2008)
10. **The high versatility of silicon based micro optical modulators**  
    SPIE Photonics West, SPIE MOEMS-MEMS: Micro- and Nanofabrication, Plenary Talk, San Jose, USA, DOI: 10.1117/12.828322 (2009)
11. **Fast scanning with MEMS mirrors - Possibilities and limitations**  
    Workshop „Fast beam deflection for laser applications“, Nuremberg, Germany (2013)
12. **High frequency MEMS scanners for imaging and patterning**  
    University of Freiburg, Freiburg, Germany (2014)
13. **Micro mirrors for high-speed laser deflections and patterning**   
    8th International Conference on Laser Assisted Net Shape Engineering LANE, Fürth, Germany, DOI: 10.1016/j.phpro.2014.08.090 (2014)
14. **Scanning micro mirrors and micro mirror arrays for laser deflection and patterning**   
    Kassel University, Kassel, Germany (2015)
15. **Mikrooptische Systeme für intelligente industrielle Lösungen [Micro-optical systems for intelligent industrial solutions]**   
    VDMA Fall Conference, Dresden, Germany (2015)
16. **Implantate - Eine interdisziplinäre Herausforderung [Implants - An interdisciplinary challenge]**   
    Workshop, Potsdam University, Germany (2016)
17. **Elektrostatische Mikro- und Nanoaktoren von denen Sie hören werden [Electrostatic micro and nano actuators that you will hear about]**   
    Brandenburg University of Technology, Cottbus-Senftenberg, Germany (2016)
18. **A novel electrostatic micro-actuator class and its application potential for optical MEMS**  
    International Conference on Optical MEMS and Nanophotonics OMN, Singapore (2016)
19. **Component and system integration of optical scanners and light modulators**  
    Handlungsfeldkonferenz Mikrosystemtechnik, Berlin, Germany (2016)
20. **Micro scanner tuned EC quantum cascade laser for fast mid infrared spectroscopic sensing**  
    Micro Photonics Conference, Berlin, Germany (2016)
21. **A contribution to the expansion of the applicability of electrostatic forces in micro transducers**  
    SPIE Photonics West, MOEMS and Miniaturized Systems XVI, San Francisco, USA, DOI: 10.1117/12.2249575 (2017)
22. **A new class of electrostatic micro and nano actuators**  
    Stanford University, Stanford, USA (2017)
23. **A novel approach for high efficient electrostatic micro/nano transducers**  
    University of California, Berkeley, USA (2017)
24. **Programmierbare optische Oberflächen - Mikrospiegelmatrizen mit nm-Auflösung [Programmable optical surfaces - Micro-mirror matrices with nm resolution]**Technical University of Applied Sciences Wildau, Germany (2017)
25. **Photonik: Eine Schlüsseltechnologie der Digitalisierung [Photonics: A key technology of digitalization]**  
    Clusterkonferenz Optik und Photonik, Potsdam, Germany (2017)
26. **Advances in MOEMS technologies for high quality imaging systems**  
    Keynote talk at SPIE Photonics West, Conf. on Advanced Lithography, San Jose, USA (2018)
27. **Advanced optical MEMS for high quality imaging systems**   
    Brandenburg University of Technology, Cottbus-Senftenberg, Germany (2018)
28. **Ein Streifzug durch die Welt der MEMS [A journey into the world of MEMS]**   
    Brandenburg University of Technology, Cottbus-Senftenberg, Germany (2018)
29. **Micro energy harvester: Device concepts and materials**Brandenburg University of Technology, Cottbus-Senftenberg, Germany (2019)
30. **iCampµs: Development and transfer platform for integrated microsensor technologies in a connected world**

Date 21, Virtual Conference and Exhibition (2021)

1. **iCampµs Cottbus: Innovationen in der Mikrosensorik**

Forschungsfabrik Mikroelektronik Deutschland, Digitalkonferenz (2021)

1. **Silicon based Micromechanical Actuators and selected Applications**

Seminar Politecnico di Milano, Milan, Italy (2023)

1. **Microelectronics and microsensor research at Brandenburg University of Technology Cottbus-Senftenberg (BTU C-S)**

Photonics Days Berlin Brandenburg 2023, Berlin (2023)

1. **Silicon integrated electrostatic drives**

Keynote talk at ACTUATOR 2024, Wiesbaden (2024),

<https://doi.org/10.24406/publica-3964>

1. **Digitalisierung und KI für Gesellschaft, Wirtschaft und Forschung - aus Sicht der Sensorik**

7. Cottbuser Tumorsymposium, Cottbus (2024),

<https://doi.org/10.24406/publica-3965>

1. H. Schenk

**Highly integrated active Spatial Light Modulators – from imaging to holography**

Keynote talk at 17th International Conference on Machine Vision, Edinburgh (2024),

<https://doi.org/10.24406/publica-3963>

*List of journal contributions (refereed)*

1. D. R. Yakovlev, V. P. Kochereshko, R. A. Suris, H. Schenk, W. Ossau, A. Waag, G. Landwehr, P. C. M. Christianen, J. C. Maan  
   **Combined exciton-cyclotron resonance in quantum well structures**   
   In: Physical Review Letters, USA: APS, Vol.79/20, pp. 3974-3977, DOI: 10.1103/PhysRevLett.79.3974 (1997)
2. H. Schenk, M. Wolf, G. Mackh, U. Zehnder, W. Ossau, A. Waag, G. Landwehr  
   **Influence of the negative thermal-expansion coefficient on the luminescence properties of (CdMnMg)Te**In: Journal of Applied Physics, Vol.79/11, pp. 8704-8711, DOI: 10.1063/1.362496 (1996)
3. H. Schenk, P. Dürr, U. Sobe  
   **Antrieb für Mikromechanische Scannerspiegel**   
   In: Elektronik Heft 24, pp. 54-58 (1999)
4. H. Schenk  
   **Ablenkeinheiten für die Sensorik**   
   In: Sensor-Report Nr. 5, pp. 18 (2000)
5. H. Schenk  
   **Leuchtende Ablenkung: Mikromechanische Scannerspiegel erreichen 30 kHz**  
   In:Elektronik-Praxis, Nr.19, pp. 114-116 (2000)
6. H. Schenk, P. Dürr, T. Haase, D. Kunze, U. Sobe, H. Lakner, H. Kück  
   **Large deflection micromechanical scanning mirrors for linear scans and pattern generation**   
   In: Journal of Selected Topics in Quantum Electronics, invited paper, Vol. 6, No. 5, pp. 715-722, DOI: 10.1109/2944.892609 (2000)
7. H. Schenk, P. Dürr, D. Kunze, H. Lakner, H. Kück  
   **A resonantly excited 2D-micro-scanning-mirror with large deflection**  
   In: Sensors and Actuators A 89, pp. 104-111, DOI: 10.1016/S0924-4247(00)00529-X (2001)
8. H. Grüger, H. Schenk, A. Wolter, A. Heberer, F. Zimmer  
   **Spektrometer mit mikromechanischem Gitter: Mikro-opto-mechanische Systeme durchbrechen Preisbarrieren**  
   In:Sensor Report, Nr. 6, pp. 16-17 (2004)
9. H. Schenk, A. Wolter, U. Dauderstädt, A. Gehner, H. Lakner  
   **Micro-opto-electro-mechanical-systems technology and its impact on photonic applications**  
   In: Journal of Microlithography, Microfabrication and Microsystems, Vol. 4, No. 4, pp. 041501-11, DOI: 10.1117/1.2131824 (2005)
10. A. Gatto, M. Yang, N. Kaiser, J. Heber, J.-U. Schmidt, T. Sandner, H. Schenk, H. Lakner  
    **High-performance coatings for micromechanical mirrors**In: Journal of Applied Optics, Vol. 45, No. 7, pp. 1602-1607, DOI: 10.1364/AO.45.001602 (2006)
11. M. Kraft, A. Kenda, A. Frank, W. Scherf, A. Heberer, T. Sandner, H. Schenk, F. Zimmer  
    **Single-detector micro-mechanical scanning grating spectrometer**In: Anal Bioanal Chem 386, pp. 1259-1266, DOI: 10.1007/s00216-006-0726-5 (2006)
12. S.-T. Hsu, T. Klose, C. Drabe, H. Schenk

**Fabrication and characterization of a dynamically flat high resolution microscanner**

In: Journal of Optics A: Pure and Applied Optics, Vol. 10, 044005, pp. 1-8, DOI: 10.1088/1464-4258/10/4/044005 (2008)

1. M. Scholles, A. Bräuer, K. Frommhagen, C. Gerwig, H. Lakner, H. Schenk, M. Schwarzenberg

**Ultra compact laser projection systems based on two-dimensional resonant microscanning mirrors**

In: Journal of Micro/Nanolithography, MEMS, and MOEMS, Vol. 7, No. 2, pp. 021001-1-11, DOI: 10.1117/1.2911643 (2008)

1. T. Sandner, C. Drabe, H. Schenk, A. Kenda, W. Scherf

**Translatory MEMS actuators for optical path length modulation in miniaturized Fourier-transform infrared spectrometers**

In: Journal of Micro/Nanolithography, MEMS, and MOEMS, Vol. 7, No. 2, pp. 021006-1-12, DOI: 10.1117/1.2945227 (2008)

1. F. Zimmer, A. Heberer, H. Grüger, H. Schenk

**Investigation and characterization of highly efficient near-infrared scanning gratings used in near-infrared microspectrometers**

In: Journal of Micro/Nanolithography, MEMS, and MOEMS, Vol. 7, No. 2, pp. 021005-1-10, DOI: 10.1117/1.2911035 (2008)

1. H. Grüger, T. Egloff, M. Scholles, F. Zimmer, H. Schenk

**Spectrometers: MOEMS scanning grating chips reveal spectral images**

In: Laser Focus World 44, No. 7, pp. 52-55 (2008)

1. H. Schenk, T. Sandner, C. Drabe, T. Klose, H. Conrad

**Single crystal silicon micro mirrors**

In: Phys. Status Solidi C 6, No. 3, pp. 728-735, DOI: 10.1002/pssc.200880714 (2009)

1. H. Conrad, T. Sandner, H. Schenk, H. Lakner

**Eine »Reinkarnation« in der Strukturmechanik**

In: CAD-CAM Report, No. 4, pp. 16-19 (2009)

1. C. Ataman, H. R. Seren, H. Schenk, H. Ürey

**Dynamic characterization of MEMS scanners**

In: Sensors & Transducers Journal, Vol. 108, No. 9, pp. 31-39 (2009)

1. M. Lenzhofer, A. Tortschanoff, A. Frank, T. Sandner, H. Schenk, M. Kraft, A. Kenda  
   **MOEMS translatory actuator characterisation, position encoding and closed-loop control**In: Microsystem Technologies 16, No. 5, pp. 901-907, DOI: 10.1007/s00542-010-1029-5 (2010)
2. A. Tortschanoff, M. Lenzhofer, A. Frank, M. Wildenhain, T. Sandner, H. Schenk, A. Kenda  
   **Position encoding and phase control of resonant MOEMS-mirrors**  
   In: Sensors and Actuators A 162, pp. 235-240, DOI: 10.1016/j.proche.2009.07.328 (2010)
3. T. Sandner, T. Grasshoff, M. Schwarzenberg, R. Schroedter, H. Schenk  
   **Quasistatic microscanner with linearized scanning for an adaptive three-dimensional laser camera**  
   In: Journal of Micro/ Nanolithography, MEMS, and MOEMS, Vol. 13, No. 1, pp. 011114-1-11, DOI: 10.1117/1.JMM.13.1.011114 (2014)
4. T. Sandner, T. Grasshoff, E. Gaumont, H. Schenk, A. Kenda  
   **Translatory MOEMS actuator and system integration for miniaturized Fourier transform spectrometers**  
   In: Journal of Micro/ Nanolithography, MEMS, and MOEMS, Vol. 13, No. 1, 011115-1-14, DOI: 10.1117/1.JMM.13.1.011115 (2014)
5. H. Schenk, J. Grahmann, T. Sandner, M. Wagner, U. Dauderstädt, J.-U. Schmidt  
   **Micro mirrors for high-speed laser deflections and patterning**  
   In: Physics Procedia, invited paper, Vol. 56, pp. 7-18, DOI: 10.1016/j.phpro.2014.08.090 (2014)
6. B. Kaiser, T. Grasshoff, C. Drabe, H. Conrad, H. Schenk  
   **About stress in filled DRIE-trenches**  
   In: Journal of Micromechanics and Microengineering (JMM), Vol. 25, No. 8, 085003, DOI: 10.1088/0960-1317/25/8/085003 (2015)
7. H. Conrad, H. Schenk, B. Kaiser, S. Langa, M. Gaudet, K. Schimmanz, M. Stolz, M. Lenz  
   **A small-gap electrostatic micro-actuator for large deflections**  
   In: Nature Communications 6, 10078, DOI: 10.1038/ncomms10078 (2015)
8. Vl. Kolkovsky, R. Stübner, S. Langa, U. Wende, B. Kaiser, H. Conrad, H. Schenk  
   **Influence of annealing in H atmosphere on the electrical properties of Al2O3 layers grown on p-type Si by the atomic layer deposition technique**  
   In: Solid-State Electronics 123, pp. 89-95, DOI: 10.1016/j.sse.2016.06.005 (2016)
9. H. Conrad, B. Kaiser, M. Gaudet, S. Langa, M. Stolz, S. Uhlig, K. Schimmanz, H. Schenk   
   **A novel electrostatic actuator class**  
   In: Procedia Engineering, 168, pp. 1533-1536, DOI: 10.1016/j.proeng.2016.11.454 (2016)
10. S. Langa, H. Conrad, B. Kaiser, M. Stolz, M. Gaudet, S. Uhlig, K. Schimmanz, H. Schenk  
    **Technological aspects of a new micro-electro-mechanical actuation principle: nano-e-drive**  
    In: Microsyst Technol, Vol. 23, Iss. 12, pp. 5697-5708, DOI: 10.1007/s00542-017-3360-6 (2017)
11. R. Borcia, M. Bestehorn, S. Uhlig, M. Gaudet, H. Schenk  
    **Liquid pumping induced by transverse forced vibrations of an elastic beam: A lubrication approach**  
    In: Phys. Rev. Fluids, Vol. 3, Iss. 8, No. 084202, DOI: 10.1103/PhysRevFluids.3.084202 (2018)
12. S. Uhlig, M. Gaudet, S. Langa, K. Schimmanz, H. Conrad, B. Kaiser, H. Schenk  
    **Electrostatically driven in-plane silicon micropump for modular configuration**  
    In: Micromachines, Vol. 9, No. 4, DOI: 10.3390/mi9040190 (2018)
13. B. Kaiser, S. Langa, L. Ehrig, M. Stolz, He. Schenk, H. Conrad, H. Schenk, K. Schimmanz, D. Schuffenhauer  
    **Concept and proof for an all-silicon MEMS micro speaker utilizing air chambers**  
    In: Microsystems & Nanoengineering (Nature), Vol. 5, No. 43, DOI: 10.1038/s41378-019-0095-9 (2019)
14. U. Dauderstädt, P. Dürr, A. Gehner, M. Wagner, H. Schenk

**Analog Spatial Light Modulators based on Micromirror Arrays**

In: Micromachines, Special Issue "Beam Steering via Arrayed Micromachines", ISSN 2072-666X, Vol. 12, No. 5, DOI: 10.3390/mi12050483 (2021)

1. J. M. Monsalve, A. Melnikov, B. Kaiser, D. Schuffenhauer, M. Stolz, L. Ehrig, He. Schenk, H. Conrad, H. Schenk

**Large-Signal Equivalent-Circuit Model of Asymmetric Electrostatic Transducers**

In: IEEE/ASME Transactions on Mechatronics, Vol. 27, No. 5, pp. 2612-2622 DOI: 10.1109/TMECH.2021.3112267 (2022)

1. B. Kaiser, He. Schenk, L. Ehrig, F. Wall, J. M. Monsalve, S. Langa, M. Stolz, A. Melnikov, H. Conrad, D. Schuffenhauer, H. Schenk

**The push-pull principle: an electrostatic actuator concept for low distortion acoustic transducers**

In: Microsystems & Nanoengineering (Nature), Vol. 8, Nr. 125, DOI: 10.1038/s41378-022-00458-z (2022)

1. S. Schweiger, T. Schulze, S. Schlipf, P. Reinig, H. Schenk

**Characterization of two-photon-polymerization lithography structures via Raman spectroscopy and nanoindentation.**

In: Journal of Optical Microsystems Vol. 2, Iss. 3, DOI: 10.1117/1.jom.2.3.033501 (2022)

1. J. M. Monsalve, A. Melnikov, M. Stolz, A. Mrosk, M. Jongmanns, F. Wall, S. Langa, I. Marica-Bercu, T. Brändel, M. Kircher He. Schenk, B. Kaiser, H. Schenk

**Proof of concept of an air-coupled electrostatic ultrasonic transducer based on lateral motion**

In: Sensors and Actuators A: Physical, Vol. 345, DOI: 10.1016/j.sna.2022.113813 (2022)

1. F. Wall, He. Schenk, A. Melnikov, B. Kaiser, H. Schenk

**A non-destructive electro-acoustic method to characterize the pull-in voltage of electrostatic actuators**

In:Nonlinear Dynamics, 10.1007/s11071-023-08811-1,(2023)

1. S. Uhlig, M. Gaudet, S. Langa, C. Ruffert, M. Jongmanns, H. Schenk

**Highly integrable silicon micropumps using lateral electrostatic bending**

**actuators**

In: Microsystem Technologies, <https://doi.org/10.1007/s00542-024-05635-w>, (2024)

1. J. M. Monsalve Guaracao, S. Langa, M. Stolz, A. Mrosk, B. Kaiser, H. Schenk

**Design of micromachines under uncertainty with the sample-average approximation method**

In: Journal of Advanced Mechanical Design, Systems, and Manufacturing, <https://doi.org/10.1299/jamdsm.2024jamdsm0018>, (2024)

*Contributions to conferences and workshops*

1. L. Worschech, C. Fischer, H. Schenk, W. Ossau, E. Kurtz, H. Schäfer, W. Faschinger, A. Waag, G. Landwehr   
   **Linearly polarized luminescence associated with structural defects in MBE grown ZnSe**In: International Symposium on Blue Laser and Light Emmitting Diodes, Chiba, Japan, 1996, Blue Laser and Light Emitting Diodes, xviii+580, pp. 421-424 (1996)
2. B. Jobst, S. Strauf, P. Bäume, E. Kurtz, H. Schenk, J. Gutowski, D. Hommel, G. Landwehr   
   **Influence of the sulphur and magnesium content on donor-acceptor-pair emission in nitrogen-plasma** **doped ternary and quaternary Zn1- xMgxSySe1-y**   
   In: International Symposium on Blue Laser and Light Emmitting Diodes, Chiba, Japan, 1996, Blue Laser and Light Emitting Diodes, xviii+580, pp. 409-412 (1996)
3. J. Linsmeier, K. Wüst, H. Schenk, U. Hilpert, W. Ossau, J. Fricke, R. Arens-Fischer  
   **Chemical surface modification of porous silicon using tetraethoxysilane**  
   In: E-MRS Spring Conference, Symposium L: New Developments in Porous Silicon: Relation with other Nanostructured Porous Materials, Strasbourg, France, 1996, Thin Solid Films, Vol. 297/1-2, pp. 26-30, DOI: 10.1016/S0040-6090(96)09360-1 (1997)
4. H. Schenk, P. Dürr, H. Kück  
   **A novel electrostatically driven torsional actuator**  
   In: International Conference on Micro Opto Electro Mechanical Systems, Mainz, Germany, 1999, pp. 3-10 (1999)
5. H. Lakner, W. Doleschal, P. Dürr, A. Gehner, H. Schenk, A. Wolter, G. Zimmer  
   **Micromirrors for direct writing systems and scanners**  
   In: SPIE Conference: Miniaturized Systems with Micro-optics and MEMS, Santa Clara, USA, 1999, Proc. SPIE 3878, pp. 217-227, DOI: 10.1117/12.361264 (1999)
6. H. Schenk, P. Dürr, D. Kunze, H. Kück  
   **A new driving principle for micromechanical torsional actuators**  
   In: International Mechanical Engineering Congress & Exhibition, Nashville, USA, 1999, Micro-Electro-Mechanical Systems (MEMS), Proc. MEMS, Vol. 1, pp. 333-338 (1999)
7. H. Schenk, P. Dürr, D. Kunze, H. Lakner, H. Kück  
   **An electrostatically excited 2D-micro-scanning-mirror with an in-plane configuration of the driving** **electrodes**  
   In: International Conference on Micro Electro Mechanical Systems, Miyazaki, Japan, 2000, Proc. MEMS, pp. 473-478, DOI: 10.1109/MEMSYS.2000.838563 (2000)
8. H. Schenk, P. Dürr, D. Kunze, H. Lakner, H. Kück  
   **Design and modelling of large deflection micromechanical 1D- and 2D-scanning-mirrors**  
   In: SPIE Conference: MOEMS and miniaturized Systems, Santa Clara, USA, 2000, Proc. SPIE 4178, pp. 116-125, DOI: 10.1117/12.396479 (2000)
9. H. Schenk, A. Wolter, H. Lakner  
   **Design optimization of an electrostatically driven micro scanning mirror**  
   In: SPIE Conference: MOEMS and miniaturized Systems II, San Francisco, USA, 2000, Proc. SPIE 4561, pp. 35-44, DOI: 10.1117/12.443106 (2001)
10. E. Gaumont, A. Wolter, H. Schenk, G. Georgelin, M. Schmoger  
    **Mechanical and electrical failures and reliability of Micro Scanning Mirrors**In:International Symposium on the Physical and Failure Analysis of Integrated Circuits, Singapore, 2002, Proc. IPFA, pp. 212-217, DOI: 10.1109/IPFA.2002.1025665 (2002)
11. H. Lakner, P. Dürr, H. Schenk, A. Gehner  
    **Mustererzeugung und -erfassung mit mikromechanischen Spiegeln und Spiegelarrays**  
    In: VDE-Kongress NetWorlds: Leben in vernetzten Welten, Dresden, Germany, 2002, Vol. 2, pp. 141-146 (2002)
12. A. Wolter, H. Schenk, E. Gaumont, H. Lakner  
    **Improved layout for a resonant 2D micro scanning mirror with low operation voltages**  
    In: SPIE Conference: MOEMS Display and Imaging Systems, San Jose, USA, 2003, Proc. SPIE 4985, pp. 72-82, DOI: 10.1117/12.472863 (2003)
13. K.-U. Roscher, U. Fakesch, H. Schenk, H. Lakner, D. Schlebusch  
    **Driver ASIC for synchronized excitation of resonant micro mirrors**  
    In: SPIE Conference: MOEMS Display and Imaging Systems, San Jose, USA, 2003, Proc. SPIE 4985, pp. 121-130, DOI: 10.1117/12.477810 (2003)
14. H. Grüger, A. Wolter, T. Schuster, H. Schenk, H. Lakner  
    **Realization of a spectrometer with micromachined scanning grating**  
    In: SPIE Conference: MEMS/ MOEMS: Advances in Photonic Communications, Sensing, Metrology, Packaging and Assembly, Bruges, Belgium, 2002, Proc. SPIE 4945, pp. 46-53, DOI: 10.1117/12.471993 (2003)
15. H. Grüger, A. Wolter, T. Schuster, H. Schenk, H. Lakner  
    **Performance and applications of a spectrometer with micromachined scanning grating**  
    In: SPIE Conference: Integrated Optics: Devices, Materials, and Technologies VII, San Jose, USA, 2003, Proc. SPIE 4987, pp. 284-291, DOI: 10.1117/12.478317 (2003)
16. P. Dürr, U. Dauderstädt, D. Kunze, M. Auvert, T. Bakke, H. Schenk, H. Lakner  
    **Characterization of spatial light modulators for micro lithography**  
    In: SPIE Conference: MOEMS Display and Imaging Systems, San Jose, USA, 2003, Proc. SPIE 4985, pp. 204-214, DOI: 10.1117/12.477803 (2003)
17. A. Gehner, M. Wildenhain, W. Doleschal, A. Elgner, H. Schenk, H. Lakner  
    **Improved vision by eye aberration correction using an active-matrix-addressed micromirror array**  
    In: SPIE Conference: MOEMS and Miniaturized Systems III, San Jose, USA, 2003, Proc. SPIE 4983, pp. 235-247, DOI: 10.1117/12.472902 (2003)
18. S. Manhart, H. Schenk, M. Kiening, L. Marchand  
    **Reliability assessment and lifetime testing with micro-mirrors**  
    In: 4th Round Table on Micro/ Nano Technologies for Space, ESTEC, Noordwijk, The Netherlands, 2003 (2003)
19. A. Wolter, H. Korth, H. Schenk, H. Lakner  
    **Temperature stability of the frequency of a resonant micro scanning mirror**  
    In: IEEE/ LEOS Conference: International Conference on Optical MEMS, Waikoloa/Hawaii, USA, 2003, pp. 55-56, DOI: 10.1109/OMEMS.2003.1233464 (2003)
20. H. Schenk, U. Dauderstädt, A. Gehner, A. Wolter, H. Grüger, C. Drabe, H. Lakner  
    **Photonic Microsystems: An enabling technology for light deflection and modulation**  
    In: SPIE Conference: MOEMS Display and Imaging Systems II, San Jose, USA, 2004, invited paper, Proc. SPIE 5348, pp. 7-21, DOI: 10.1117/12.523948 (2004)
21. C. Drabe, H. Schenk, K.-U. Roscher, D. Kunze, H. Lakner  
    **Accelerometer by means of a Resonant Micro Actuator**   
    In: SPIE Conference: MEMS/ MOEMS Components and Their Applications, San Jose, USA, 2004, Proc. SPIE 5344, pp. 124-133, DOI: 10.1117/12.524130 (2004)
22. A. Wolter, H. Schenk, H. Korth, H. Lakner  
    **Torsional stress, fatigue and fracture strength in silicon hinges of a micro scanning mirror**  
    In: SPIE Conference: Reliability, Testing, and Characterization of MEMS/ MOEMS III, San Jose, USA, 2004, Proc. SPIE 5343, pp. 176-185, DOI: 10.1117/12.524872 (2004)
23. A. Kenda, W. Scherf, R. Hauser, H. Grüger, H. Schenk  
    **A compact spectrometer based on a micromachined torsional mirror device**  
    In: IEEE Conference: International Conference on Sensors, Vienna, Austria, 2004, Proc. IEEE Vol. 3, pp. 1312-1315, DOI: 10.1109/ICSENS.2004.1426423 (2004)
24. T. Kiessling, A. Wolter, H. Schenk, H. Lakner  
    **Bulk micro machined quasistatic torsional micro mirror**  
    In: SPIE Conference on MOEMS and Miniaturized Systems IV, San Jose, USA, 2004, Proc. SPIE 5346, pp. 193-202, DOI: 10.1117/12.530717 (2004)
25. A. Wolter, H. Schenk, E. Gaumont, H. Lakner  
    **MEMS microscanning mirror for barcode reading: from development to production**  
    In: SPIE Conference: MOEMS Display and Imaging Systems II, San Jose, USA, 2004, Proc. SPIE 5348, pp. 32-39, DOI: 10.1117/12.530795 (2004)
26. U. Dauderstädt, P. Dürr, T. Karlin, H. Schenk, H. Lakner  
    **Application of spatial light modulators for microlithography**  
    In: SPIE Conference: MOEMS Display and Imaging Systems II, San Jose, USA, 2004, Proc. SPIE 5348, pp. 119-126, DOI: 10.1117/12.528798 (2004)
27. K.-U. Roscher, H. Grätz, H. Schenk, A. Wolter, H. Lakner  
    **Low cost projection device with a 2-dimensional resonant micro scanning mirror**  
    In: SPIE Conference: MOEMS Display and Imaging Systems II, San Jose, USA, 2004, Proc. SPIE 5348, pp. 22-31, DOI: 10.1117/12.530860 (2004)
28. J. Schreiber, S. Braun, A. Gatto, H. Schenk  
    **Improved mechanical properties of metallic micro-structures**In: SPIE Conference: Testing, Reliability, and Application of Micro- and Nano-Material Systems II, San Diego, USA, 2004, Proc. SPIE 5392, pp. 114-122, DOI: 10.1117/12.541312 (2004)
29. K.-U. Roscher, H. Grätz, H. Schenk, A.Wolter, H. Lakner  
    **Laser projection device based on a 2D resonant micro scanning mirror**  
    In: 19. Electronic Displays 2004. CD-ROM: Bildschirme und Anzeigesysteme, ihre Bauelemente und Baugruppen, Wiesbaden, Germany (2004)
30. D. Schlebusch, G. Bunk, U. Vogel, H. Schenk, K.-U. Roscher  
    **Analogue components for a mixed signal driver ASIC for resonant micro-mirror control**  
    In: International Conference for Optical Technologies, Optical Sensors and Measuring Techniques and IRS2, International Conference for Infrared Sensors and Systems, Nuremberg, Germany, 2004, Proc. OPTO, pp. 35-40 (2004)
31. T. Sandner, T. Klose, A. Wolter, H. Schenk, H. Lakner, W. Davis  
    **Damping analysis and measurement for a comb-drive scanning mirror**  
    In: SPIE Conference: MEMS, MOEMS, and Micromachining, Strasbourg, France, 2004, Proc. SPIE 5455, pp. 147-158, DOI: 10.1117/12.550529 (2004)
32. A. Wolter, E. Gaumont, H. Korth, H. Schenk, H. Lakner  
    **Fabrication end- test of the micro scanning mirror**  
    In: SPIE Conference: MEMS, MOEMS, and Micromachining, Strasbourg, France, 2004, Proc. SPIE 5455, pp. 54-65, DOI: 10.1117/12.545247 (2004)
33. F. Zimmer, H. Grüger, A. Heberer, A. Wolter, H. Schenk  
    **Development of a NIR micro spectrometer based on a MOEMS scanning grating**  
    In: SPIE Conference: MEMS, MOEMS, and Micromachining, Strasbourg, France, 2004, Proc. SPIE 5455, pp. 9-18, DOI: 10.1117/12.544638 (2004)
34. H. Schenk, P. Dürr, U. Dauderstädt, A. Gehner, A. Wolter, H. Lakner  
    **Light processing with electrostatically driven micro scanning mirrors and micro mirror arrays**  
    In: MicroNano Integration, Berlin, Germany, 2004, pp. 89-96 (VDI book), DOI: 10.1007/978-3-642-18727-8\_13 (2004)
35. A. Wolter, A. Herrmann, G. Yildiz, H. Schenk, H. Lakner  
    **Designing MEMS for manufacturing**  
    In: SPIE Conference: Optomechatronic Micro/Nano Components, Devices, and Systems, Philadelphia, USA, 2004, Proc. SPIE 5604, pp. 74-85, DOI: 10.1117/12.580902 (2004)
36. A. Wolter, S.-T. Hsu, H. Schenk, H. Lakner  
    **Applications and requirements for MEMS scanner mirrors**  
    In:SPIE Conference: MOEMS and Miniaturized Systems V, San Jose, USA, 2005, Proc. SPIE 5719, pp. 64-75, DOI: 10.1117/12.600076 (2005)
37. T. Sandner, J.-U. Schmidt, H. Schenk, H.Lakner, S. Braun, T. Foltyn, A. Leson, A. Gatto, M. Yang, N. Kaiser  
    **Micromechanical scanning mirrors with highly reflective NIR coatings for high power applications**In:SPIE Conference: MOEMS Display and Imaging Systems III, San Jose, USA, 2005, Proc. SPIE 5721, pp. 34-42, DOI: 10.1117/12.590448 (2005)
38. T. Sandner, J.-U. Schmidt, H. Schenk, H. Lakner, A. Gatto, M. Yang, N. Kaiser, S. Braun, T. Foltyn, A. Leson  
    **Highly reflective coatings for micromechanical mirror arrays operating in the DUV and VUV spectral range**  
    In:SPIE Conference: MOEMS Display and Imaging Systems III, San Jose, USA, 2005, Proc. SPIE 5721, pp. 72-80, DOI: 10.1117/12.590522 (2005)
39. U. Dauderstädt, P. Dürr, U. Ljungblad, T. Karlin, H. Schenk, H.Lakner  
    **Mechanical stability of spatial light modulators in microlithography**In: SPIE Conference: MOEMS Display and Imaging Systems III, San Jose, USA, 2005, Proc. SPIE 5721, pp. 64-71, DOI: 10.1117/12.590082 (2005)
40. U. Künzelmann, M. Wagner, H. Schenk, H. Lakner  
    **High surface planarity die bonding of large optical chips**  
    In: IEEE Conference: International Conference on Polymers and Adhesives in Microelectroncis and Photonics, Wroclaw, Poland, 2005, Proc. IEEE, pp. 117-122, DOI: 10.1109/POLYTR.2005.1596499 (2005)
41. M. Scholles, A. Bräuer, K. Frommhagen, C. Gerwig, B. Höfer, E. Jung, H. Lakner, H. Schenk, B. Schneider, P. Schreiber, A. Wolter **Miniaturized optical module for projection of arbitrary images based on two-dimensional resonant micro scanning mirrors**In: SPIE Conference: Optical Scanning, San Diego, USA, 2005, Proc. SPIE 5873, pp. 72-83, DOI: 10.1117/12.616779 (2005)
42. F. Zimmer, H. Grüger, A. Heberer, T. Sandner, A. Wolter, H. Schenk **Scanning micro-mirrors: From bar-code-scanning to spectroscopy**In: SPIE Conference: Optical Scanning, San Diego, USA, 2005, Proc. SPIE 5873, pp. 84-94, DOI: 10.1117/12.614895 (2005)
43. H. Grüger, A. Heberer, F. Zimmer, A. Wolter, H. Schenk **Miniaturized MOEMS spectrometer for NIR applications**In: SPIE Conference: Optomechanics, San Diego, USA, 2005, Proc. SPIE 5877, DOI: 10.1117/12.614750 (2005)
44. A. Gehner, M. Wildenhain, H. Neumann, A. Elgner, H. Schenk **MEMS phase former kit for high-resolution wavefront control**In: SPIE Conference: Advanced Wavefront Control: Methods, Devices, and Applications III, San Diego, USA, 2005, Proc. SPIE 5894, DOI: 10.1117/12.618326 (2005)
45. T. Sandner, J.-U. Schmidt, H. Schenk, H. Lakner, M. Yang, A. Gatto, N. Kaiser, S. Braun, T. Foltyn, A. Leason  
    **Highly reflective thin film coatings for high power applications of micro scanning mirros in the NIR-VIS-UV spectral region**In: SPIE Conference: Advances in Optical Thin Films II, Jena, Germany, 2005, Proc. SPIE 5963, DOI: 10.1117/12.625246 (2005)
46. A. Heberer, H. Grüger, F. Zimmer, H. Schenk, A. Kenda, A. Frank, W. Scherf **Signal processing for a single detector MOEMS based NIR micro spectrometer**In: SPIE Conference: Detectors and Associated Signal Processing II, Jena, Germany, 2005, Proc. SPIE 5964, DOI: 10.1117/12.624990 (2005)
47. T. Bakke, M. Friedrichs, B. Völker, M. Reiche, L. Leonardsson, H. Schenk, H.Lakner **Spatial light modulators with monocrystalline silicon micromirrors made by wafer bonding**In: SPIE Conference: Micromachining and Microfabrication Process Technology X, San Jose, USA, 2005, Proc. SPIE 5715, pp. 69-79, DOI: 10.1117/12.590567 (2005)
48. H. Grüger, H. Schenk, A. Heberer, F. Zimmer, W. Scherf, A. Kenda, A. Frank  
    **New MOEMS based systems appropriate for spectroscopic investigations on agricultural growth and perishable food conditions**  
    In: SPIE Conference: Optical Sensors and Sensing Systems for Natural Resources and Food Safety and Quality, Boston, USA, 2005, Proc. SPIE 5996, DOI: 10.1117/12.630143 (2005)
49. H. Schenk, H. Grüger, F. Zimmer, W. Scherf, A. Kenda **Optical MEMS for advanced spectrometers**  
    In: IEEE Conference: Optical MEMS and their Applications Conference, Oulo, Finland, 2005, invited paper, Proc. IEEE, pp. 117-118, DOI: 10.1109/OMEMS.2005.1540106 (2005)
50. T. Bakke, B. Völker, H. Schenk, I. Radu, M. Reiche  
    **Wafer bonding for optical MEMS**  
    In: International Symposium on Semiconductor Wafer Bonding VIII: Science and Technology, and Applications, Quebec City, Canada, 2005, Proc. 2005-02, pp. 184-193 (2005)
51. H. Schenk, T. Sandner, H. Lakner **Micro optical devices for light modulation and deflection**  
    In: MikroSystemTechnik-Kongress, Freiburg, Germany, 2005, VDE-Verlag, pp. 179-182 (2005)
52. T. Klose, D. Kunze, T. Sandner, H. Schenk, H. Lakner, A. Schneider, P. Schneider  
    **Stress optimization of a micromechanical torsional spring**  
    In: NSTI Nanotechnology Conference and Trade Show, Anaheim (CA), USA, 2005, Vol. 3, pp. 602-605 (2005)
53. M. Yang, A. Gatto, N. Kaiser, J.-U. Schmidt, T. Sandner, J. Heber, H. Schenk, H. Lakner  
    **VUV optical coatings for the next-generation micro-mechanical mirrors**  
    In: SPIE Conference: Advances in Optical Thin Films II, Jena, Germany, 2005, Proc. SPIE 5963, DOI: 10.1117/12.625138 (2005)
54. L. Trabzon, K. Lukat, I. Jankowski, P. Dürr, H. Schenk

**Measurement of charging under DUV laser by a test chip for MOEMS and the mechanism of charging**

In: Proc. of the 6th euspen International Conference, Baden, Austria, 2006, pp. 66-69 (2006)

1. T. Bakke, B. Völker, D. Rudloff, M. Friedrichs, H. Schenk, H. Lakner  
   **Large-scale drift-free monocrystalline silicon micromirror arrays made by wafer bonding**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.646182 (2006)
2. M. Wagner, U. Künzelmann, H. Schenk, H. Lakner  
   **Global flatness of spatial light modulators**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.644580 (2006)
3. F. Zimmer, H. Grüger, A. Heberer, T. Sandner, H. Schenk, H. Lakner, A. Kenda, W. Scherf  
   **Development of high-efficient NIR-scanning gratings for spectroscopic applications**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.644481 (2006)
4. T. Sandner, J.-U. Schmidt, H. Schenk, H. Lakner, M. Yang, A. Gatto, N. Kaiser, S. Braun, T. Foltyn, A. Leson  
   **Highly reflective optical coatings for high-power applications of micro scanning mirrors in the UV-VIS/NIR spectral region**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.644626 (2006)
5. T. Klose, T. Sandner, H. Schenk, H. Lakner **Extended damping model for out-of-plane comb driven micromirrors**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.645981 (2006)
6. A. Wolter, T. Klose, S.-T. Hsu, H. Schenk, H. Lakner **Scanning 2D micromirror with enhanced flatness at high frequency**In: SPIE Conference: MOEMS Display, Imaging, and Miniaturized Microsystems IV, San Jose, USA, 2006, Proc. SPIE 6114, DOI: 10.1117/12.654478 (2006)
7. A. Kenda, C. Drabe, H. Schenk, A. Frank, M. Lenzhofer, W. Scherf  
   **Application of a micromachined translatory actuator to an optical FTIR spectrometer**In: SPIE Conference: MEMS, MOEMS, and Micromachining II, Strasbourg, France, 2006, Proc. SPIE 6186, DOI: 10.1117/12.662008 (2006)
8. C. Drabe, T. Klose, H. Schenk, A. Wolter, H. Lakner   
   **A large deflection translatory actuator for optical path length modulation**In: SPIE Conference: MEMS, MOEMS, and Micromachining II, Strasbourg, France, 2006, Proc. SPIE 6186, DOI: 10.1117/12.662853 (2006)
9. D. Schlebusch, G. Bunk, H. Schenk, K.-U. Roscher, U. Vogel

**Analoge Schaltungskomponenten eines Treiber-ASICs für resonante Mikrospiegel**

In: Fachtagung Entwicklung von Analogschaltungen mit CAE-Methoden, Dresden, Germany, 2006, ITG-Fachbericht, Vol. 196, pp. 185-189 (2006)

1. M. Scholles, A. Bräuer, K. Frommhagen, C. Gerwig, B. Höfer, H. Lakner, H. Schenk, M. Schwarzenberg  
   **Design of miniaturized optoelectronic systems using resonant micro scanning mirrors for projection of full-color images**In: SPIE Conference: Current Developments in Lens Design and Optical Engineering VII, San Diego, USA, 2006, Proc. SPIE 6288, DOI: 10.1117/12.680317 (2006)
2. T. Sandner, A. Kenda, C. Drabe, H. Schenk, W. Scherf  
   **Miniaturized FTIR-spectrometer based on an optical MEMS translatory actuator**In:SPIE Conference: MOEMS and Miniaturized Systems VI, San Jose, USA, 2007, Proc. SPIE 6466, DOI: 10.1117/12.697898 (2007)
3. M. Scholles, A. Bräuer, K. Frommhagen, C. Gerwig, H. Lakner, H. Schenk, M. Schwarzenberg  
   **Ultra-compact laser projection systems based on two-dimensional resonant micro scanning mirrors**In:SPIE Conference: MOEMS and Miniaturized Systems VI, San Jose, USA, 2007, Proc. SPIE 6466, DOI: 10.1117/1.2911643 (2007)
4. S.-T. Hsu, A. Wolter, W.-D. Owe, H. Schenk  
   **Fracture strength of SOI springs in MEMS micromirrors**In:SPIE Conference: MOEMS and Miniaturized Systems VI, San Jose, USA, 2007, Proc. SPIE 6466, DOI: 10.1117/12.698933 (2007)
5. C. Drabe, T. Klose, A. Wolter, H. Schenk, R. James, H. Lakner  
   **A new micro laser camera**In:SPIE Conference: MOEMS and Miniaturized Systems VI, San Jose, USA, 2007, Proc. SPIE 6466, DOI: 10.1117/12.700360 (2007)
6. F. Zimmer, A. Heberer, T. Sandner, H. Grüger, H. Schenk, H. Lakner A. Kenda, W. Scherf  
   **Investigation and characterization of high-efficient NIR-scanning gratings used in NIR-micro-spectrometer**In:SPIE Conference: MOEMS and Miniaturized Systems VI, San Jose, 2007, USA, Proc. SPIE 6466, DOI: 10.1117/12.701821 (2007)
7. T. Egloff, H. Grüger, F. Zimmer, H. Schenk, M. Scholles, H. Lakner  
   **NIR hyperspectral imaging using MOEMS scanning grating chips and linear detector array**  
   In: SPIE Conference: Next-Generation Spectroscopic Technologies, Boston, USA, 2007, Proc. SPIE Vol. 6765, DOI: 10.1117/12.734016 (2007)
8. T. Sandner, H. Conrad, T. Klose, H. Schenk  
   **Integrated piezo-resistive positionssensor for microscanning mirrors**In:IEEE/ LEOS Conference: International Conference on Optical MEMS and Nanophotonics, Hualien, Taiwan, 2007, Proc. IEEE, pp. 195-196, DOI: 10.1109/OMEMS.2007.4373907 (2007)
9. S.-T. Hsu, T. Klose, C. Drabe, A. Wolter, H. Schenk  
   **Ultra flat high resolution microscanners**In:IEEE/ LEOS Conference: International Conference on Optical MEMS and Nanophotonics, Hualien, Taiwan, 2007, Proc. IEEE, pp. 197-198, DOI: 10.1109/OMEMS.2007.4373908 (2007)
10. T. Sandner, H. Schenk, H. Lakner, A. Kenda, W. Scherf  
    **Einsatz translatorischer MOEMS-Aktoren für FTIR-Spektrometer**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 485-488 (2007)
11. F. Zimmer, H. Grüger, A. Heberer, T. Sandner, H. Schenk, H. Lakner **NIR-Spektroskopie: Entwicklung eines miniaturisierten MOEMS Spektrometers für den Einsatz im NIR-Bereich**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 497-500 (2007)
12. H. Schenk, C. Drabe, T. Klose, A. Wolter, H. Lakner  
    **2D-Mikroscanner mit hoher Auslenkung zur Bildaufnahme**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 509-512 (2007)
13. T. Klose, A. Wolter, T. Sandner, H. Schenk  
    **Optimierung der dynamischen Deformation von Mikroscannerspiegeln**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 1015-1018 (2007)
14. M. Scholles, K. Frommhagen, C. Gerwig, H. Lakner, H. Schenk, M. Schwarzenberg, A. Bräuer **Miniaturisierte Laserprojektionssysteme basierend auf zweidimensionalen resonanten Microscannerspiegeln**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 1025-1028 (2007)
15. T. Egloff, H. Grüger, F. Zimmer, H. Schenk, M. Scholles, H. Lakner **Neuartiger MST Ansatz zur Realisierung kostengünstiger Systeme zum „Hyperspectral Imaging“ im NIR**In: MikroSystemTechnik-Kongress, Dresden, Germany, 2007, VDE-Verlag, pp. 1045-1048 (2007)
16. H. Grüger, M. Scholles, H. Schenk, H. Lakner **Tilt compensated laser projection system for handheld devices with motion compensation and input device function**In: International Display Workshops, Sapporo, Japan, 2007, Proc. IDW, Vol. 2, pp. 1329-1332 (2007)
17. [S.-T. Hsu](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Hsu%2C+Shu-Ting&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [T. Klose](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Klose%2C+Thomas&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [C. Drabe](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Drabe%2C+Christian&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [H. Schenk](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Schenk%2C+Harald&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true)  
    **Two dimensional microscanners with large horizontal-vertical scanning frequency ratio for high-resolution laser projectors**In: SPIE Conference: MOEMS and Miniaturized Systems VII, San Jose, USA, 2008, Proc. SPIE 6887, DOI: 10.1117/12.761617 (2008)
18. [H. Grüger](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Gruger%2C+Heinrich&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [T. Egloff](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Egloff%2C+Thomas&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [M. Scholles](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Scholles%2C+Michael&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [F. Zimmer](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Zimmer%2C+Fabian&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [M. Müller](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Muller%2C+Michael&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [H. Schenk](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Schenk%2C+Harald&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true)  
    **Pushbroom NIR hyperspectral imager using MOEMS scanning grating chips**  
    In: SPIE Conference: MOEMS and Miniaturized Systems VII, San Jose, USA, 2008, Proc. SPIE 6887, DOI: 10.1117/12.762904 (2008)
19. [H. Grüger](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Gruger%2C+Heinrich&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [J. Knobbe](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Knobbe%2C+Jens&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [M. Scholles](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Scholles%2C+Michael&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [H. Schenk](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Schenk%2C+Harald&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true), [H. Lakner](http://spiedigitallibrary.aip.org/vsearch/servlet/VerityServlet?KEY=SPIEDL&possible1=Lakner%2C+Hubert&possible1zone=author&maxdisp=25&smode=strresults&&bproc=year&scode=2008&aqs=true)  
    **New approach for MEMS scanning mirror for laser projection systems**In: SPIE Conference: MOEMS and Miniaturized Systems VII, San Jose, USA, 2008, Proc. SPIE 6887, DOI: 10.1117/12.761531 (2008)
20. T. Sandner, C. Drabe, H. Schenk, A. Kenda, W. Scherf  
    **Miniaturized FTIR-spectrometer based on optical MEMS translatory actuator**   
    In: Workshop Optical Spectrometer: Design, Technology, Application and Trend, Jena, Germany, DOI: 10.1117/12.697898 (2008)
21. D. Jung, T. Klose, T. Grasshoff, T. Sandner, H. Schenk, H. Lakner  
    **3D hybrid capacitance model for angular vertical comb drives**  
    In: Electronics System-Integration Technology Conference, Greenwich, UK, 2008, Proc. ESTC, Vol. 1, pp. 541-546, DOI: 10.1109/ESTC.2008.4684407 (2008)
22. H. Conrad, T. Klose, T. Sandner, H. Schenk, H. Lakner  
    **Actuating methods of quasistatic micromirros for active focus variation**  
    In: International Students and Young Scientists Workshop “Photonics and Microsystems”, Wroclaw, Poland, pp. 7-11, DOI: 10.1109/STYSW.2008.5164131 (2008)
23. H. Schenk, M. Wagner, A. Gehner, M. Müller, T. Sandner, C. Drabe, H. Lakner  
    **Silicon-based micro-optic modulators**  
    In: MicroMechanics Europe Workshop, Aachen, Germany, pp. 3-11 (2008)
24. H. Conrad, T. Klose, T. Sandner, D. Jung, H. Schenk, H. Lakner  
    **Modelling the thermally induced curvature of multilayer coatings with COMSOL multiphysics**  
    In: COMSOL Conference, Hannover, Germany, 2008, Proc. COMSOL, CD-ROM (2008)
25. T. Klose, H. Conrad, T. Sandner, H. Schenk  
    **Fluidmechanical damping analysis of resonant micromirrors with out-of-plane comb drive**  
    In: COMSOL Conference, Hannover, Germany, 2008, Proc. COMSOL, CD-ROM (2008)
26. T. Sandner, M. Wildenhain, T. Klose, H. Schenk, S. Schwarzer, V. Hinkov, H. Höfler, H. Wölfelschneider  
    **3D imaging using resonant large-aperture MEMS mirror arrays and laser distance measurement**  
    In: IEEE/ LEOS Conference: International Conference on Optical MEMS and Nanophotonics, Freiburg, Germany, 2008, Proc. IEEE, pp. 78-79, DOI: 10.1109/OMEMS.2008.4607837 (2008)
27. M. Kraft, A. Kenda, T. Sandner, H. Schenk  
    **MEMS-based compact FT-spectrometers – A platform for spectroscopic mid-infrared sensors**  
    In: IEEE Conference: Sensors, Lecce, Italy, 2008, Proc. IEEE, pp. 130-133, DOI: 10.1109/ICSENS.2008.4716400 (2008)
28. F. Zimmer, M. Friedrichs, M. Lapisa, F. Niklaus, M. Müller, T. Bakke, H. Schenk, H. Lakner  
    **The integration of mono-crystalline silicon micro-mirrors on CMOS for SLM applications**  
    In: International Conference on Multi-Material Micro Manufacture, Cardiff, UK, 2008, pp. 35-38 (2008)
29. J. Grahmann, H. Conrad, T. Sandner, T. Klose, H. Schenk  
    **Integrated position sensing for 2D microscanning mirrors using the SOI-device layer as the piezoresistive mechanical-elastic transformer**In: SPIE Conference: MOEMS and Miniaturized Systems VIII, San Jose, USA, 2009, Proc. SPIE 7208, DOI: 10.1117/12.808151 (2009)
30. F. Zimmer, F. Niklaus, M. Lapisa, T. Ludewig, M. Bring, M. Friedrichs, T. Bakke, H. Schenk, W. van der Wijngaart  
    **Fabrication of large-scale mono-crystalline silicon micro-mirror arrays using adhesive wafer transfer bonding**  
    In: SPIE Conference: MOEMS and Miniaturized Systems VIII, San Jose, USA, 2009, Proc. SPIE 7208, DOI: 10.1117/12.808694 (2009)
31. D. Jung, D. Kallweit, T. Sandner, H. Conrad, H. Schenk, H. Lakner  **Fabrication of 3D comb drive microscanners by mechanically induced permanent displacement**In: SPIE Conference: MOEMS and Miniaturized Systems VIII, San Jose, USA, 2009, Proc. SPIE 7208, DOI: 10.1117/12.808210 (2009)
32. H. Grüger, J. Knobbe, T. Egloff, M. Althaus, M. Scholles, H. Schenk  
    **Scanning photon microscope based on a MEMS 2D scanner mirror**  
    In: SPIE Conference: MOEMS and Miniaturized Systems VIII, San Jose, USA, 2009, Proc. SPIE 7208, DOI: 10.1117/12.808139 (2009)
33. H. Schenk   
    **The high versatility of silicon based micro-optical modulators**  
    In: SPIE Conference: MOEMS and Miniaturized Systems VIII, San Jose, USA, 2009, plenary paper, Proc. SPIE 7208, DOI: 10.1117/12.828322 (2009)
34. T. Sandner, T. Grasshoff, T. Klose, H. Schenk, J. L. Massieu  
    **MEMS based laser imager with diagonal progressive scanning**In: IEEE Conference: International Conference on Micro Electro Mechanical Systems, Sorrento, Italy, 2009, Proc. IEEE, pp. 951-954, DOI: 10.1109/MEMSYS.2009.4805542 (2009)
35. T. Sandner, C. Drabe, H. Schenk, A. Kenda  
    **Large stroke MOEMS actuators for optical path length modulation in miniaturized FTIR-spectrometers**In: SPIE Conference: Next-Generation Spectroscopic Technologies II, Orlando, USA, Proc. SPIE 7319, DOI: 10.1117/12.818605 (2009)
36. H. Grüger, T. Egloff, T. Pügner, M. Scholles, H. Schenk, H. Lakner  
    **Diffractive MEMS components, systems and applications**In: SPIE Conference: Next-Generation Spectroscopic Technologies II, Orlando, USA, Proc. SPIE 7319, DOI: 10.1117/12.818465 (2009)
37. A. Tortschanoff, A. Kenda, M. Kraft, T. Sandner, H. Schenk, W. Scherf  
    **Improved MOEMS based ultra rapid Fourier transform infrared spectrometer**  
    In: SPIE Conference: Next-Generation Spectroscopic Technologies II, Orlando, USA, Proc. SPIE 7319, DOI: 10.1117/12.818646 (2009)
38. H. Conrad, J.-U. Schmidt, W. Pufe, F. Zimmer, T. Sandner, H. Schenk, H. Lakner  
    **Aluminum nitride – A promising and full CMOS compatible piezoelectric material for MOEMS applications**In: SPIE Conference: Smart Sensors, Actuators and MEMS IV, Dresden, Germany, Proc. SPIE 7362, DOI: 10.1117/12.821715 (2009)
39. M. Lenzhofer, A. Tortschanoff, A. Frank, T. Sandner, H. Schenk, M. Kraft, A. Kenda  
    **Position encoding and closed loop control of MOEMS translatory actuators**In: SPIE Conference: Smart Sensors, Actuators and MEMS IV, Dresden, Germany, 2009, Proc. SPIE 7362, DOI: 10.1117/12.821715 (2009)
40. H. Schenk, T. Sandner, C. Drabe, M. Scholles, K. Frommhagen, C. Gerwig, H. Lakner  
    **Ultra compact laser based projectors and imagers**In: J.A. Jacko (Ed.): Human-Computer Interaction, Part III, HCII 2009, LNCS 5612, Springer-Verlag Berlin Heidelberg, pp. 501-510, DOI: 10.1007/978-3-642-02580-8\_55 (2009)
41. A. Tortschanoff, M. Lenzhofer, A. Frank, A. Kenda, T. Sandner, H. Schenk  
    **Improved MEMS based FT-IR spectrometer: Position encoding and closed loop control**In: IEEE Conference: International Symposium on Optomechatronic Technologies, Instanbul, Turkey, 2009, Proc. IEEE, pp. 116-121, DOI: 10.1109/ISOT.2009.5326109 (2009)
42. A. Kenda, A. Frank, M. Kraft, A. Tortschanoff, T. Sandner, H. Schenk, W. Scherf  
    **Compact high-speed spectrometers based on MEMS devices with large amplitude in-plane actuators**  
    In: Procedia Chemistry, Proc. of Eurosensors XXIII, Vol. 1, pp. 556-559, DOI: [10.1016/j.proche.2009.07.139](http://dx.doi.org/10.1016/j.proche.2009.07.139" \t "_blank" \o "Persistent link using digital object identifier) 10.1016/j.proche.2009.07.139 (2009)
43. A. Kenda, A. Frank, M. Kraft, A. Tortschanoff, T. Sandner, H. Schenk, W. Scherf  
    **MOEMS-based scanning light barrier**  
    In: Procedia Chemistry, Proc. Eurosensors XXIII, Vol. 1, pp. 1299-1302, DOI: 10.1016/j.proche.2009.07.324 (2009)
44. A. Tortschanoff, M. Lenzhofer, A. Frank, M. Wildenhain, T. Sandner, H. Schenk, A. Kenda  
    **Position encoding and phase control of resonant MOEMS-mirrors**  
    In: Procedia Chemistry, Proc. Eurosensors XXIII, Vol. 1, pp. 1315-1318, DOI: 10.1016/j.proche.2009.07.328 (2009)
45. C. Drabe, R. James, H. Schenk, T. Sandner  
    **MEMS-Devices for laser camera systems for endoscopic applications**  
    In: SPIE Conference: MOEMS and Miniaturized Systems IX, San Francisco, USA, 2010, Proc. SPIE 7594, DOI: 10.1117/12.846855 (2010)
46. T. Sandner, T. Grasshoff, M. Wildenhain, H. Schenk  
    **Synchronized micro scanner array for large aperture receiver optics of LIDAR systems**  
    In: SPIE Conference: MOEMS and Miniaturized Systems IX, San Francisco, USA, 2010, Proc. SPIE 7594, DOI: 10.1117/12.844923 (2010)
47. T. Sandner, M. Wildenhain, C. Gerwig, H. Schenk, S. Schwarzer, H. Wölfelschneider  
    **Large aperture MEMS scanner module for 3D distance measurement**In: SPIE Conference: MOEMS and Miniaturized Systems IX, San Francisco, USA, 2010, Proc. SPIE 7594, DOI: 10.1117/12.844926 (2010)
48. A. Tortschanoff, M. Lenzhofer, A. Frank, M. Wildenhain, T. Sandner, H. Schenk, A. Kenda  
    **Optical position feedback and phase control of MOEMS-scanner mirrors**In: SPIE Conference: MOEMS and Miniaturized Systems IX, San Francisco, USA, 2010, Proc. SPIE 7594, DOI: 10.1117/12.840629 (2010)
49. A. Kenda, M. Kraft, A. Tortschanoff, C. Wagner, B. Lendl, T. Sandner, H. Schenk  
    **Miniaturized MEMS-based spectrometric sensor for process control and analysis of carbonated beverages**  
    In: SPIE Conference: MOEMS and Miniaturized Systems IX, San Francisco, USA, 2010, Proc. SPIE 7594, DOI: 10.1117/12.841957 (2010)
50. M. Scholles, M. Grafe, P. Miskowiec, V. Bock, H. Schenk  
    **Optical inspection of MOEMS devices using a configurable and suitable for production image processing system**  
    In: SPIE Conference: Reliability, Packaging, Testing, and Characterization of MEMS/ MOEMS and Nanodevices IX, San Francisco, USA, 2010, Proc. SPIE 7592, DOI: 10.1117/12.845075 (2010)
51. H. R. Seren, N. P. Ayerden, J. Sharma, S. T. S. Holmström, T. Sandner, T. Grasshoff, H. Schenk, H. Urey  
    **Lamellar grating based MEMS Fourier transform spectrometer**  
    In: IEEE Conference: International Conference on Optical MEMS and Nanophotonics, Sapporo, Japan, Proc. IEEE Vol. 1, pp. 105-106, DOI: 10.1109/OMEMS.2010.5672163 (2010)
52. T. Sandner, T. Grasshoff, H. Schenk  
    **Translatory MEMS actuator with extraordinary large stroke for optical path length modulation**  
    In: IEEE Conference: International Conference on Optical MEMS and Nanophotonics, Sapporo, Japan, Proc. IEEE Vol. 1, pp. 25-26, DOI: 10.1109/OMEMS.2010.5672203 (2010)
53. A. Tortschanoff, A. Frank, M. Wildenhain, T. Sandner, H. Schenk, A. Kenda  
    **Position feedback and phase control of resonant MOEMS-mirros with one and two axes**  
    In: Procedia Engineering 5, Proc. Eurosensors XXIV, pp. 689-692, DOI: [10.1016/j.proeng.2010.09.203](http://dx.doi.org/10.1016/j.proeng.2010.09.203) [doi:10.1016/j.proeng.2010.09.203](http://dx.doi.org/10.1016/j.proeng.2010.09.203) [doi:10.1016/j.proeng.2010.09.203](http://dx.doi.org/10.1016/j.proeng.2010.09.203) [doi:10.1016/j.proeng.2010.09.203](http://dx.doi.org/10.1016/j.proeng.2010.09.203) 10.1016/j.proeng.2010.09.203 (2010)
54. H. Grüger, M. Scholles, H. Schenk  
    **MEMS-based photonic systems: Hardware synergy for maximized user benefits**  
    In: Microtech Conference & Expo, Anaheim, USA, 2010, Proc. of NSTI-Nanotech (2010)
55. T. Sandner, T. Grasshoff, H. Schenk, A. Kenda  
    **Out-of-plane translatory MEMS actuator with extraordinary large stroke for optical path length modulation**In: SPIE Conference: MOEMS and Miniaturized Systems X, San Francisco, USA, 2011, Proc. SPIE 7930, DOI: 10.1117/12.879069 (2011)
56. A. Tortschanoff, A. Frank, M. Wildenhain, H. S. Tetikol, T. Sandner, H. Schenk, A. Kenda  
    **Optical position feedback and phase control of resonant 1D and 2D MOEMS-scanners**  
    In: SPIE Conference: MOEMS and Miniaturized Systems X, San Francisco, USA, 2011, Proc. SPIE 7930, DOI: 10.1117/12.873261 (2011)
57. J. Grahmann, T. Grasshoff, H. Conrad, T. Sandner, H. Schenk  
    **Integrated piezoresisitve position detection for electrostatic driven micro scanning mirrors**  
    In: SPIE Conference: MOEMS and Miniaturized Systems X, San Francisco, USA, 2011, Proc. SPIE 7930, DOI: 10.1117/12.874979 (2011)
58. A. Mai, M. Krellmann, S. Sinning, S. Wolschke, Dauderstädt, M. Wagner, D. Schmeißer, H. Schenk  
    **In situ surface topography measurement of MOEMS structures under laser exposure**In: SPIE Conference: MOEMS and Miniaturized Systems X, San Francisco, USA, 2011, Proc. SPIE7930, DOI: 10.1117/12.877062 (2011)
59. H. Conrad, W. Pufe, H. Schenk  
    **Aluminum nitride thin film development using statistical methods**  
    In: International Students and Young Scientists Workshop „Photonics and Microsystems”, Cottbus, Germany, pp. 10-19, DOI: 10.1109/STYSW.2011.6155833 (2011)
60. T. Pügner, J. Knobbe, H. Grüger, H. Schenk  
    **Design of a hybrid integrated MEMS scanning grating spectrometer**  
    In: SPIE Conference: Optical Design and Engineering IV, Marseille, France, 2011, Proc. SPIE 8167, DOI: 10.1117/12.896872 (2011)
61. T. Sandner, D. Jung, D. Kallweit, T. Grasshoff, H. Schenk  
    **Microscanner with vertical out of plane combdrive**In: International Conference on Optical MEMS & Nanophotonics, Istanbul, Turkey, 2011, pp. 33-34, DOI: 10.1109/OMEMS.2011.6031051 (2011)
62. D. Kallweit, D. Jung, T. Sandner, H. Schenk  
    **Fabrication of a quasistatic-resonant microscanner by implementing a vertical combdrive through wafer assembly actuation**  
    In: International Conference on Optical MEMS & Nanophotonics, Istanbul, Turkey, 2011, pp. 147-148, DOI: 10.1109/OMEMS.2011.6031046 (2011)
63. T. Pügner,J. Knobbe, H. Grüger, H. Schenk   
    **Realization of a hybrid-integrated MEMS scanning grating spectrometer**  
    In: SPIE Conference: Next-Generation Spectroscopic Technologies V, Baltimore, USA, 2012, Proc. SPIE 8374, DOI: 10.1117/12.919068 (2012)
64. J. Grahmann, M. Wildenhain, T. Grasshoff, C. Gerwig, H.-G. Dallmann, A. Wolter, H. Schenk   
    **Laser projector solution based on two 1D resonant micro scanning mirrors assembled in a low vertical distortion scan head**In: SPIE Conference: MOEMS and Miniaturized Systems XI, San Francisco, USA, 2012, Proc. SPIE 8252, DOI: 10.1117/12.910671 (2012)
65. C. Drabe, D. Kallweit, A. Dreyhaupt, J. Grahmann, H. Schenk, W. Davis  
    **Bi-resonant scanning mirror with piezo-resistive position sensor for WVGA laser projection systems**In: SPIE Conference: MOEMS and Miniaturized Systems XI, San Francisco, USA, 2012, Proc. SPIE 8252, DOI: 10.1117/12.910203 (2012)
66. T. Sandner, T. Grasshoff, H. Schenk, A. Kenda   
    **Translatory MEMS actuator and their system integration for miniaturized Fourier transform spectrometers**   
    In: SPIE Conference: MOEMS and Miniaturized Systems XI, San Francisco, USA, 2012, Proc. SPIE 8252, DOI: 10.1117/12.909817 (2012)
67. A. Tortschanoff, M. Baumgart, A. Frank, M. Wildenhain, T. Sandner, H. Schenk, A. Kenda   
    **Optical position feedback for electrostatically driven MOEMS-scanners**In: SPIE Conference: MOEMS and Miniaturized Systems XI, San Francisco, 2012, USA, Proc. SPIE 8252, DOI: 10.1117/12.907761 (2012)
68. D. Jung, T. Sandner, D. Kallweit, H. Schenk  
    **Vertical comb drive microscanners for beam steering, linear scanning and laser projection applications**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XI, San Francisco, USA, 2012, Proc. SPIE 8252, DOI: 10.1117/12.906690 (2012)
69. H. Grüger, J. Knobbe, T. Pügner, H. Schenk  
    **Design and characterization of a hybrid-integrated MEMS scanning grating spectrometer**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XII, San Francisco, USA, 2013, Proc. SPIE 8616, DOI: 10.1117/12.2004215 (2013)
70. S. Langa, C. Drabe, C. Kunath, A. Dreyhaupt, H. Schenk  
    **Wafer level vacuum packaging of scanning micro-mirrors using glass-frit and anodic bonding methods**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XII, San Francisco, USA, 2013, Proc. SPIE 8614, DOI: 10.1117/12.2003525 (2013)
71. H. Grüger, T. Pügner, J. Knobbe, H. Schenk  
    **First application close measurements applying the new hybrid integrated MEMS spectrometer** In: SPIE Conference: Next-Generation Spectroscopic Technologies VI, Baltimore, USA, 2013, Proc. SPIE 8726, DOI: 10.1117/12.2016085 (2013)
72. T. Sandner, S. Kimme, T. Grasshoff, U. Todt, A. Graf, H. Schenk, C. Tulea, A. Lenenbach  
    **Micro-scanning mirrors for high-power laser applications in laser surgery camera**  
    In: International Conference on Optical MEMS & Nanophotonics, Kanazawa, Japan, 2013, pp. 83-4, DOI: 10.1117/12.2042671 (2013)
73. T. Sandner, T. Grasshoff, M. Schwarzenberg, H. Schenk, A. Tortschanoff  
    **Quasi-static microscanner with linearized raster scanning for an adaptive 3D-laser camera**  
    In: International Conference on Optical MEMS & Nanophotonics, Kanazawa, Japan, 2013, pp. 103-4, DOI: 10.1109/OMN.2013.6659080 (2013)
74. T. Sandner, S. Kimme, T. Grasshoff, U. Todt, A. Graf, C. Tulea, A. Lenenbach, H. Schenk  
    **Micro-scanning mirrors for high-power laser applications in laser surgery**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XIII, San Francisco, USA, 2014, Proc. SPIE 8977, DOI: 10.1117/12.2042671 (2014)
75. T. Sandner, T. Grasshoff, M. Schwarzenberg, R. Schroedter, H. Schenk  
    **Quasi-static microscanner with linearized raster scanning for an adaptive 3D-laser camera**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XIII, San Francisco, USA, 2014, Proc. SPIE 8977, DOI: 10.1117/12.2064898 (2014)
76. J. Grahmann, A. Merten, R. Ostendorf, M. Fontenot, D. Bleh, H. Schenk, H.-J. Wagner  
    **Tunable external cavity quantum cascade lasers (EC-QCL): an application field for MOEMS based scanning gratings**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XIII, San Francisco, USA, 2014, Proc. SPIE 8977, DOI: 10.1117/12.2039950 (2014)
77. D. Bleh, R. Ostendorf, A. Merten, J. Grahmann, H. Schenk, M. Kunzer, R. Schmidt, J. Wagner  
    **Miniaturization of a fast tunable external cavity QCL with customized gratings and MOEMS components**  
    In: International Quantum Cascade Lasers School & Workshop (IQCLSW), Policoro, Italy, 2014, pp. 1-2 (2014)
78. C. Schirrmann, F. Costache, K. Bornhorst, B. Pawlik, A. Rieck, H. Schenk  
    **Design and fabrication of a tunable two-fluid micro-lens device with a large deflection polymer actuator**  
    In: Procedia Engineering 87, Proc. Eurosensors XXVIII, Brescia, Italy, 2014, pp. 1553-1556, DOI: 10.1016/j.proeng.2014.11.596 (2014)
79. S. Hintschich, T. Pügner, J. Knobbe, J. Schröder, P. Reinig, H. Grüger, H. Schenk  
    **MEMS-based miniature near-infrared spectrometer for application in environmental and food monitoring**  
    In: IEEE Conference: International Conference on Sensing Technology, Liverpool, UK, 2014, Proc. IEEE, pp. 430-434 (2014)
80. A. Kenda, M. Kraft, A. Tortschanoff, W. Scherf, T. Sandner, H. Schenk, S. Luettjohann, A. Simon  
    **Development, characterization and application of compact spectrometers based on MEMS with in-plane capacitive drives**  
    In: SPIE Conference: Next-Generation Spectroscopic Technologies VII, Baltimore, USA, 2014, Proc. SPIE 9101, 910102-1-10, DOI: 10.1117/12.2053347 (2014)
81. J. Wagner, R. Ostendorf, J. Grahmann, A. Merten, S. Hugger, J.-P. Jarvis, F. Fuchs, D. Boscovic, H. Schenk  
    **Widely tunable quantum cascade lasers for spectroscopic sensing**  
    In: SPIE Conference: Quantum Sensing and Nanophotonic Devices XII, San Francisco, USA, 2015, Proc. SPIE 9370, DOI: 10.1117/12.2082794 (2015)
82. C. Sicker, J. Heber, D. Berndt, F. Rückerl, J.-Y. Tinevez, S. Shorte, M. Wagner, H. Schenk  
    **Spatially resolved contrast measurement of diffractive micromirror arrays**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XIV, San Francisco, USA, 2015, Proc. SPIE 9375, DOI: 10.1117/12.2076921 (2015)
83. H. Schenk, H. Conrad, M. Gaudet, S. Uhlig, B. Kaiser, S. Langa, M. Stolz, K. Schimmanz   
    **A novel electrostatic micro-actuator class and its application potential for optical MEMS**  
    In: International Conference on Optical MEMS and Nanophotonics (OMN), Singapore, 2016, invited paper, Proc. IEEE, Art. Tu3.11, DOI: 10.1109/OMN.2016.7565867 (2016)
84. H. Conrad, B. Kaiser, M. Gaudet, S. Langa, M. Stolz, S. Uhlig, K. Schimmanz, H. Schenk  
    **A novel electrostatic actuator class**  
    **I**n: Procedia Engineering, 168, pp. 1533-1536, DOI: 10.1016/j.proeng.2016.11.454 (2016)
85. M. Gaudet, S. Uhlig, M. Stolz, S. Arscott, H. Conrad, S. Langa, B. Kaiser, H. Schenk  
    **Electrostatic bending actuators with liquid filled nanometer scale gap**  
    In: IEEE Conference: International Conference on Micro Electro Mechanical Systems, Las Vegas, USA, 2017, Proc. IEEE, pp. 175-178, DOI: 10.1109/MEMSYS.2017.7863369 (2017)
86. H. Schenk, H. Conrad, M. Gaudet, S. Uhlig, B. Kaiser, S. Langa, M. Stolz, K. Schimmanz  
    **A contribution to the expansion of the applicability of electrostatic forces in micro transducers**  
    In: SPIE Conference: MOEMS and Miniaturized Systems XVI, San Francisco, USA, 2017, invited paper, Proc. SPIE 10116, DOI: 10.1117/12.2249575 (2017)
87. H. Conrad, M. Gaudet, B. Kaiser, S. Langa, M. Stolz, H. Schenk  
    **CMOS-kompatible elektrostatische Biegeaktoren [CMOS-compatible electrostatic actuators]**  
    In: MikroSystemTechnik-Kongress, Munich, Germany, 2017, VDE-Verlag, pp. 219-222 (2017)
88. S. Uhlig, M. Gaudet, S. Langa, K. Schimmanz, H. Conrad, B. Kaiser, H. Schenk  
    **Electrostatically in-plane driven silicon micropump for modular configuration**  
    In: Conference on MicroFluidic Handling Systems (MFHS), Enschede, Netherlands, 2017, Proc. MFHS, pp. 57-60 (2017)
89. H. Schenk, M. Wagner, J. Grahmann, A. Merten  
    **Advances in MOEMS technologies for high quality imaging systems**  
    In: SPIE Conference: Advanced Lithography, San Jose, USA, 2018, Proc. SPIE 10587, DOI: 10.1117/12.2297399 (2018)
90. H. Conrad, L. Ehrig, B. Kaiser, He. Schenk, D. Schuffenhauer, M. Stolz, M. Gaudet, H. Schenk  
    **CMOS-kompatibler MEMS-Lautsprecher für Im-Ohr-Anwendungen [CMOS-compatible MEMS speaker for in-ear applications]**  
    In: DAGA Conference, Munich, Germany, 2018, Proc. DAGA, pp. 892-894 (2018)
91. L. Ehrig, B. Kaiser, H. Conrad, He. Schenk, D. Schuffenhauer, M. Stolz, M. Gaudet, H. Schenk  
    **MEMS-Loudspeaker – A novel class of electroacoustic transducers for mobile audio applications**  
    In: Tonmeistertagung - VDT International Convention, Cologne, Germany, 2018, Proc. TMT30, pp. 189-192 (2018)
92. M. Stolz, A. Mrosk, B. Kaiser, S. Langa, L. Ehrig, H. Conrad, M. Gaudet, H. Schenk  
    **Optische Charakterisierungsmethoden von siliziumbasierten MEMS mit verdeckten Strukturen [Optical characterization methods of silicon based MEMS with hidden structures]**   
    In: MikroSystemTechnik-Kongress, Berlin, Germany, 2019, VDE-Verlag, pp. 366-369 (2019)
93. B. Spitz, F. Wall, He. Schenk, A. Melnikov, L. Ehrig, S. Langa, M. Stolz, B. Kaiser, H. Conrad, H. Schenk  
    **Audio-Transducer für In-Ear-Anwendungen auf der Basis CMOS-kompatibler, elektrostatischer Biegeaktoren [Audio transducer for in-ear applications on the basis of CMOS-compatible, electrostatic bending actuators]**   
    In: MikroSystemTechnik-Kongress, Berlin, Germany, 2019, VDE-Verlag, pp. 54-57 (2019)
94. S. Langa, B. Kaiser, M. Stolz, L. Ehrig, He. Schenk, R. Pineda Gomez, D. Schuffenhauer, F. Selbmann, H. Conrad, H. Schenk  
    **Fully integrated MEMS loudspeaker based on NED actuators and wafer level bonding**  
    In: International Conference of Wafer Bonding, Halle, Germany, Proc. WaferBond’19, pp. 57-58 (2019)
95. L. Ehrig, B. Kaiser, He. Schenk, M. Stolz, S. Langa, H. Conrad, H. Schenk, A. Männchen, T. Brocks

**Acoustic validation of electrostatic all-silicon MEMS-speakers**

In: AES International Conference on Headphone Technology, San Francisco, New York, USA, 2019, DOI: 10.17743/aesconf.2019.978-1-942220-29-9, Paper 10 (2019)

1. L. Ehrig, He. Schenk, F. Wall, B. Kaiser, S. Langa, M. Stolz, M. M. Guaracao, A. Melnikov, H. Conrad, H. Schenk  
   **Electrostatic all-silicon MEMS speakers for in-ear audio applications – acoustic measurements and modelling approach**  
   In: 23rd International Congress on Acoustics, Aachen, Germany, 2019, DOI: 10.18154/RWTH-CONV-239893 (2019)
2. A. Melnikov, He. Schenk, F. Wall, B. Spitz, L. Ehrig, S. Langa, B. Kaiser, H. Conrad, H. Schenk

**Minimization of nonlinearities in nano electrostatic drive actuators using validated coupled-field simulation**

In: SPIE Conference: MOEMS and Miniaturized Systems XIX, San Francisco, USA, 2020, Proc. SPIE 11293, DOI: 10.1117/12.2551271 (2020)

1. S. Schweiger, S. G. Koch, H. Schenk

**Two-Photon-Lithography Substrate Reflection and Absorption Compensation for Additive Manufacturing of Metamaterials on MEMS**

In: 44th International Spring Seminar on Electronics Technology, Dresden, Germany (2021)

1. F. Villasmunta, P. Steglich, S. Schrader, H. Schenk, A. Mai

**Numerical simulation of optical through-silicon waveguide for 3D photonic interconnections**

In: NUSOD Numerical Simulation of Optoelectronic Devices, Turin, Italien (2021)

1. A. Melnikov, M. Stolz, F. Wall, B. Kaiser, A. Mrosk, D. Schuffenhauer, J. Monsalve, L. Sergiu, H. Schenk, He. Schenk, L. Ehrig, H. Conrad, M. Ahnert

**Nonlinearity of balanced MEMS loudspeakers: Optical experiments and numerical modeling using time-harmonic signals**

In: 27th International Congress on Sound and Vibration, Annual Congress of International Institute of Acoustics and Vibration (IIAV) (2021)

1. K. Narimani, S. Shashank, S. Langa, R. Pineda Gómez, C. Ruffert, M. Scholles, H. Schenk

**Highly Modular Microsystem Inchworm Motor Based on a Nanoscopic Electrostatic Drive**

In: MikroSystemTechnik Kongress, Ludwigsburg, Deutschland (2021)

1. M. Stolz, S. Langa, B. Kaiser, H. Schenk

**Reliability Aspects of in-plane NED Bending Actuators in Silicon-based MEMS**

In: MikroSystemTechnik Kongress, Ludwigsburg, Deutschland (2021)

1. S. Schweiger, S. Koch, H. Schenk

**Two-Photon Lithography Parameter Study for Manufacturing of Acoustic Metamaterials on MEMS**

In: MikroSystemTechnik Kongress, Ludwigsburg, Deutschland (2021)

1. T. Meisel, A. Melnikov, A. Alexander, T. Brändel, J. M. Monsalve, B. Kaiser, H. Schenk

**Directivity optimization of MEMS ultrasonic transducers by implementing acoustic horns**

In: 24th International Congress on Acoustics, Gyeongju, Korea (2022)

1. F. Villasmunta, P. Steglich, F. Heinrich, C. Villringer, A. Mai, S. Schrader, H. Schenk

**Optical Through-Silicon Waveguides for 3D-Chip-Interconnections**

In: 124. Jahrestagung der DGaO, Berlin, Deutschland (2023)

1. J. M. Monsalve, B. Kaiser, H. Schenk

**Design of Micromachined Ultrasonic Transducers for Variability with the Sample-Average Approximation Method**

In: MikroSystemTechnik Kongress, Dresden, Deutschland (2023)

1. C. Ruffert, He. Schenk, L. Ehrig, B. Kaiser, A. Melnikov, S. Langa, F. Wall, J. M. Monsalve, M. Stolz, H. Conrad, A. Mrosk, D. Schuffenhauser, H. Schenk

**Elektrostatischer Gegentakt NED-Aktor für Im-Ohr-μ-Lautsprecher**

In: Mittelstandskonferenz 2023, Berlin, Deutschland (2023),

DOI: 10.24406/publica-2553

1. F. Villasmunta, P. Steglich, C. Villringer, S. Schrader, H. Schenk, A. Mai, M. Regehly

**Design, fabrication, and characterization of integrated optical through-silicon waveguides for 3D photonic interconnections**

In: SPIE Photonics West 24 conference, San Francisco (2024), <http://dx.doi.org/10.1117/12.3003146>

1. F. Wall, A. G. Hermann, A. Melnikov, L. Ehrig, B. Kaiser, H. Schenk

**Optimization of Harmonic Distortions for Electrostatic MEMS Push-Pull NED-Micro-Louspeakers**

In: iCampus Cottbus Conference 2024, Cottbus (2024)

DOI 10.5162/iCCC2024/P31

*Dissertation, habilitation thesis and contributions to books*

1. H. Schenk  
   **Ein neuartiger Mikroaktor zur ein- und zweidimensionalen Ablenkung von Licht [A novel micro actuator for one- and two-dimensional deflection of light]**Dissertation, Gerhard-Mercator-University, Duisburg (2001)
2. H. Lakner, A. Wolter, H. Schenk  
   **Bildgebende Mikrosysteme: Chips, die mit Licht arbeiten** **[Imaging microsystems: Chips that work with light]**Jahrbuch Optik und Feinmechanik 2001, Fachverlag Schiele & Schön, Berlin, pp. 167-190 (2001)
3. H. Schenk  
   **Siliziumbasierte mikrooptische Modulatoren [Silicon-based micro-optical modulators]**  
   Habilitation thesis, Brandenburg University of Technology, Cottbus (2008)
4. H. Schenk  
   **Optische Mikrosysteme [Optical microsystems]**  
   Chapter 17 in textbook of VDI “Mikrotechnologie für Ausbildung, Studium und Weiterbildung (Microtechnology for training, studies and training)”, Fachbuchverlag Leipzig, Carl Hanser Verlag, pp. 539-592 (2011)
5. H. Schenk, L. J. Hornbeck  
   **Micro Mirrors**Chapter 46 in “Nanoelectronics and Information Technology, Advanced Electronic Materials and Novel Devices”, Wiley-VCH, pp. 985-999 (2012)
6. H. Schenk, M. Schulze  
   **Micro Mirrors**  
   Chapter 49 in “Handbook of Silicon Based MEMS Materials and Technologies”, Elsevier, pp. 949-968 (2020)

*Edited publications*

1. D. L. Dickensheets, B. P. Gogoi, H. Schenk (editors)   
   **MOEMS and Miniaturized Systems VI**  
   Proceedings of SPIE, Vol. 6466 (2007)
2. D. L. Dickensheets, H. Schenk (editors)   
   **MOEMS and Miniaturized Systems VII**  
   Proceedings of SPIE, Vol. 6887 (2008)
3. W. Piyawattanametha, H. Schenk (Guest Editorial)   
   **Special Section on Silicon-based MOEMS and their Applications**Journal of Micro/ Nanolithography, MEMS, and MOEMS   
   Vol. 7, No 2, p. 080901-1 (2008)
4. D. L. Dickensheets, H. Schenk, W. Piyawattanametha (editors)   
   **MOEMS and Miniaturized Systems VIII**  
   Proceedings of SPIE, Vol. 7208 (2009)
5. H. Schenk, W. Piyawattanametha (editors)   
   **MOEMS and Miniaturized Systems IX**  
   Proceedings of SPIE, Vol. 7594 (2010)
6. H. Schenk, W. Piyawattanametha (editors)   
   **MOEMS and Miniaturized Systems X**  
   Proceedings of SPIE, Vol. 7930 (2011)
7. H. Schenk, W. Piyawattanametha, W. Noell (editors)   
   **MOEMS and Miniaturized Systems XI**  
   Proceedings of SPIE, Vol. 8252 (2012)

*List of patents and patent registrations*

1. Schenk, P. Dürr, H. Kück  
   **Micromechanical component comprising an oscillating body**  
   Status: closed. GB 1123526 (24.07.2002), IT 1123526 (24.07.2002), CH 1123526 (24.07.2002), AT 1 123 526 (24.07.2002), US 6,595,055 B1 (22.07.2003), NL 1123526, DE 598 04 942.8-08 (24.07.2002), FR 1123526 (24.07.2002), EP 1 123 526 B1 (24.07.2002)
2. H. Schenk, A. Wolter, M. Schwarzenberg  
   **Projection apparatus**Status: closed. US 6,843,568 B2 (18.01.2005), EP 1 419 411 B1 (19.01.2005), DE 501 05 156.2 (19.01.2005),
3. A. Kenda, W. Scherf, M. Kraft, H. Schenk  
   **Miniaturized fourier transform spectrometer**  
   Status: issued. US 7,301,643 B2 (27.11.2007), closed. AT 413 765 B (15.05.2006), US 7,301,643 B2 (27.11.2007), FR EP 1 637 850 B1 (06.01.2016), DE 50 2005 015 072.4 (06.01.2016), EP 1 637 850 B1 (06.01.2016)
4. H. Schenk, H. Grüger  
   **Spectrometer**Status: closed. US 7,034,936 B2 (25.04.2006), EP 1474 665 B1 (06.09.2006), DE 502 08 089.2-08 (06.09.2006)
5. H. Schenk, H. Grüger  
   **Spectrometer**Status: closed. US 7,027,152 B2 (11.04.2006), EP 1474 666 B1 (08.08.2007), DE 502 10 665.4-08 (08.08.2007)
6. H. Schenk, C. Drabe

**Acceleration sensor and method for detecting an acceleration**

Status: closed. DE 503 08 298.8-08 (26.09.2007), US 7,059,189 B2 (13.06.2006), EP 1 608 988 B1 (26.09.2007)

1. H. Schenk  
   **Micromechanical device**  
   Status: closed. US 7,078,778 B2 (18.07.2006), EP 1 410 047 B1 (28.02.2007), DE 501 12 140.4-08 (28.02.2007)
2. C. Drabe, A. Wolter, H. Schenk  
   **Micromechanical element having adjustable resonant frequency**  
   Status: closed. EP 1 613 969 B1 (29.07.2009), DE 503 11 766.8-08 (29.07.2009)
3. H. Schenk  
   **Apparatus and method for controlling or regulating an oscillating deflectable micromechanical element**   
   Status: issued. US 7,977,897 B2 (12.07.2011)
4. H. Schenk  
   **Apparatus and method for projecting images and/or processing materials**Status: closed. US 7,518,770 B2 (14.04.2009), EP 1 652 377 B1 (11.10.2006), DE 503 05 392.9-08 (11.10.2006)
5. H. Schenk, A. Wolter

**Mikromechanisches Bauelement**

Status: closed. DE 10 2006 036 499 B4 (04.06.2009)

1. H. Schenk, C. Drabe  
   **Micro-optical arrangement**Status: issued. US 7,301,690 B2 (27.11.2007), DE 50 2005 013 490.7 (27.02.2013), Status: closed. EP 1 717 631 B1 (27.02.2013)
2. H. Schenk, A. Wolter, T. Sandner, C. Drabe, T. Klose  
   **Oscillating, deflectable micromechanical element and method for use thereof**Status: issued. US 7,932,788 B2 (26.04.2011), DE 11 2006 003 849 B4 (20.09.2012)
3. T. Sandner, H. Schenk, W. Pufe  
   **Microoptic reflecting component**Status: issued. US 7,490,947 B2 (17.02.2009), DE 10 2006 059 091 B4 (31.03.2011), CN ZL200610167764.5 (14.11.2012)
4. T. Klose, A. Wolter, H. Schenk  
   **Method for the compensation of deviations occurring as a result of manufacture in the manufacture of micromechanical elements and their use**Status: issued. DE 10 2006 043 388 B3 (10.04.2008), US 7,951,635 B2 (31.05.2011), CN 200710146364 (28.03.2012)
5. H. Schenk, T. Sandner  
   **Mikromechanisches Bauelement und Verfahren zum Herstellen desselben [Micromechanical component having increased stiffness, and method for the production of the same]**Status: issued. DE 11 2007 003 051 B4 (20.12.2012)
6. J.-U. Schmidt, T. Sandner, H. Schenk, A. Gatto, M. Yang, J. Heber, N. Kaiser  
   **Micromechanical mirrors with a high-reflection coating, method for production thereof and use thereof**Status: issued. US 7,573,634 (11.08.2009); disclosure. WO06000445 (05.01.2006)
7. T. Sandner, H. Schenk, M. Scholles, M. Schwarzenberg, A. Wolter  
   **Projection apparatus for scanningly projection**Status: issued. US 7,847,997 B2 (07.12.2010); CN ZL 2008 1 0083459.7 (16.06.2010)
8. H. Schenk, T. Sandner, C. Drabe, T. Klose, D. Jung  
   **Micromechanical device with tilted electrodes**Status: issued. US 7,466,474 B2 (16.12.2008), DE 10 2008 012 825 B4 (25.08.2011), CN ZL200810081805.8 (28.03.2012)
9. D. Jung, C. Drabe, H. Schenk, T. Sandner, T. Klose, A. Wolter  
   **Method for generating a micromechanical structure**Status: issued. US 7,940,439 B2 (10.05.2011), CN ZL200810090384.5 (14.11.2012), DE 10 2008 013 116 B4 (11.04.2013)
10. T. Sandner, H. Schenk  
    **Optical device comprising a structure for avoiding reflections**Status: issued. US 7,760,414 B2 (20.07.2010), CN ZL200810081806.2 (04.05.2011), DE 10 2008 012 810 B4 (12.12.2013)
11. F. Costache, M. Blasl, H. Schenk  
    **Apparatus and method for guiding optical waves**  
    Status: issued. JP 5398923 (01.11.2013), DE 60 2010 014 412.7 (19.03.2014), US 9,046,704 B2 (02.06.2015), GB EP 2 513715 B1 (19.03.2014) Status: closed. WE EP 2 513715 B1 (19.03.2014)
12. H. Conrad, H. Schenk, C. Schirrmann, F. Zimmer, J.-U. Schmidt, T. Sandner  
    **Micromechanical device**  
    Status: issued. IT 502017000084227 (03.05.2017), US 9,164,277 B2 (20.10.2015), JP 5951640 (17.06.2016), DE 50 2011 012 156.3 (08.06.2017), FR EP 2 664 058 B1, closed. EP 2 664 058 B1 (03.05.2017),
13. F. Costache, H. Schenk, K. Bornhorst, C. Schirrmann  
    **Fluidic variable focal length optical lens and method of manufacturing the same**  
    Status: issued. US 9,250,367 B2 (02.02.2016), DE 11 2010 005 674 B4 (01.10.2020)
14. H. Schenk, J. Grahmann, H.-J. Wagner, R. Ostendorf, M. Rattunde  
    ***Microelectromechanical system for tuning of lasers***  
    Status: issued. DE 10 2014 201 701 B4 (05.04.2018), US 9,893,491 B2 (13.02.2018), JP 6321190 (13.04.2018)
15. S. Langa, H. Conrad, H. Schenk, M. Stolz  
    **Electrostatically deflectable micromechanical device**

Status: issued. DE 10 2014 225 934 B4 (03.08.2017), US 10,483,876 B2 (19.11.2019)

1. E. Kurth, C. Kunath, H. Schenk  
   **Ion-sensitive structure and method for producing the same**

Status: issued. US 10,365,244 B2 (30.07.2019), DE 50 2016 014 831.7 (04.05.2022), CH 3070463 (04.05.2022), DE 10 2015 204 921 B4 (28.09.2023), closed. EP 3 070 463 (05.02.2023)

1. H. Schenk, H. Conrad, M. Gaudet, K. Schimmanz, S. Langa, B. Kaiser  
   **MEMS transducer for interacting with a volume flow of a fluid and method for manufacturing the same**

Status: issued. CN ZL 2016 8 0048446.9 (19.06.2020), JP 6668385 (28.02.2020), KR 10-2036429 (18.10.2019), US 10,457,544 B2 (29.10.2019), DE 50 2016 013 380.8 (07.07.2021), FR 3 308 555 (07.07.2021), GB 3 308 555 (07.07.2021), NL 3 308 555 (07.07.2021); EP 3878804 (22.01.2025), DE 502016 016 878.4 (22.01.2025), EP 3878801 (16.04.2025), DE 3878801 (16.04.2025), disclosure. EP 21168755.3 (14.06.2016)

1. H. Conrad, M. Gaudet, H. Schenk, S. Uhlig  
   **Micromechanical devices with mechanical actuators**

Status: issued. DE 602018015497.3 (14.04.2021), FR 3568595 (14.04.2021), US 11,639,718 (02.05.2023), closed. DE 10 2017 200 308 B4 (08.07.2021), WE 3 568 595 B1 (14.04.2021)

1. H. Schenk, H. Conrad  
   **MEMS-Wandler zum Interagieren mit einem Volumenstrom eines Fluids und Verfahren zum Herstellen desselben [MEMS transducer for interacting with a volume flow of a fluid, and method for producing the same]**

Status: issued. US 11,554,950 (17.01.2023), WE 3612493 (10.07.2024), DE 50 2018 015 839.8 (10.07.2024), closed. TW I717597 (01.02.2021)

1. S. Shashank, H. Schenk, M. Gaudet

**MEMS actuator and method for controlling a MEMS actuator**

Status: issued. DE 10 2020 214 445 B3 (05.05.2022)

1. H. Schenk, F. Zimmer, A. Wolter

**Mikrooptisches Beugungsgitter sowie Verfahren zur Herstellung**

Status: issued. DE11 2005 003 705.3 (02.02.2017), US 10591651 BB (17.03.2020), closed. WO 07036182 A1 (05.04.2007)

1. H. Schenk, T. Sandner, J. Heber, T. Klose, A. Bergmann, C. Gerwig, T. Knieling

**Micromechanical device with temperature stabilization and method for adjusting a defined temperature or a defined temperature course on a micromechanical device**

Status: issued. CN101301992 B (06.08.2014), DE 10 2008 013 098 B4 (09.02.2012), US 8,147,136 B2 (03.04.2012), US 8,842,356 B2 (23.09.2014)