

# Scientific publications

of Dr.-Ing. Robert Kirchner (born 02/09/1981) as on September 04<sup>th</sup>, 2019:

## Book contributions

1. R. Kirchner and J. Taniguchi, “Guest Editorial for Special Issue on 3D Lithography: Toward full three-dimensional (3D) high volume fabrication,” *Adv. Opt. Techn.*, vol. 8, 2019
2. R. Kirchner and A. Finn, *Mikrosystemtechnik und Entwurf von Mikrosystemen*, ch. Fabrication of multilevel polymer photonic microsystems by UV-nanoimprint-based replication, pp. 129–143. No. 59, Dresdner Beiträge zur Sensorik (Gerald Gerlach), 2015. ISBN 978-3-95908-011-8
3. R. Kirchner, J. Derix, A. Nocke, and R. Landgraf, *Bio and Nano Packaging Techniques for Electron Devices*, ch. Direct Nanoimprinting for Micro- and Nanosystems, pp. 209–241. Springer-Verlag Berlin Heidelberg, 2012
4. J. Uhlemann, R. Kirchner, and K.-J. Wolter, *Bio and Nano Packaging Techniques for Electron Devices*, ch. Biocompatibility of Packaging Materials, pp. 491–514. Springer-Verlag Berlin Heidelberg, 2012

Book contributions: 4

## Journals

5. R. Kirchner, A. Schleunitz, R. Zhang, and H. Schiff, "Smart Origination and Functional Replication: Thermal Reflow and Innovative 3D Structures," *J. Photopol. Science and Technology*. [accepted]
6. R. Kirchner, V. A. Guzenko, and H. Schiff, "Single-digit 6-nm multilevel patterns by electron beam grayscale lithography," *Adv. Opt. Techn.*, no. 8, 2019
7. R. Kirchner and H. Schiff, "Thermal reflow of polymers for innovative and smart 3D structures: A review," *Mater. Sci. Semicond. Process.*, no. 92, pp. 58–72, 2019
8. R. Kirchner, N. Chidambaram, and H. Schiff, "Benchmarking surface selective vacuum ultraviolet and thermal postprocessing of thermoplastics for ultrasMOOTH 3-D-printed micro-optics," *Opt. Eng.*, no. 57, p. 041403 (13pp), 2018
9. R. Fallica, D. Kazazis, R. Kirchner, A. Voigt, I. Mochi, H. Schiff, and Y. Ekinici, "Lithographic performance of ZEP520A and mr-PosEBR resists exposed by electron beam and extreme ultraviolet lithography," *J. Vac. Sci. Technol. B*, no. 35, p. 061603 (7pp), 2017
10. C. Kaspar, J. Butschke, M. Irmscher, S. Martens, H. Sailer, R. Kirchner, V. Guzenko, H. Schiff, and J. Burghartz, "Adjustable sidewall slopes by electron-beam exposure layout," *J. Vac. Sci. Technol. B*, no. 35, p. 06G501 (6 pp), 2017
11. N. Chidambaram, R. Kirchner, R. Fallica, L. Yu, M. Altana, and H. Schiff, "Selective surface smoothing of polymer microlenses by depth confined softening," *Adv. Mater. Tech.*, vol. 2, no. 5, p. 1700018 (10 pp), 2017
12. R. Fallica, R. Kirchner, H. Schiff, and Y. Ekinici, "High-Resolution Greyscale Patterning using Extreme Ultraviolet Interference Lithography," *Microelectron. Eng.*, no. 177, pp. 1–5, 2017
13. R. Fallica, D. Maily, R. Kirchner, and Y. Ekinici, "A comparative study of resists and lithographic tools using the Lumped Parameter Model," *J. Vac. Sci. Technol. B*, vol. 34, p. 06K702 (8pp), 2016
14. N. Chidambaram, R. Kirchner, M. Altana, and H. Schiff, "High fidelity 3D thermal nanoimprint with UV curable polydimethyl siloxane stamps," *J. Vac. Sci. Technol. B*, vol. 34, no. 6, p. 06K401 (6pp), 2016
15. D. Virganičius, V. Cadarso, R. Kirchner, L. Stankevičius, T. Tamulevičius, S. Tamulevičius, and H. Schiff, "Patterning of diamond like carbon films for sensor applications using silicon containing thermoplastic resist (SiPol) as a hard mask," *Appl. Surf. Sci.*, vol. 385, pp. 145–152, 2016

16. M. Pianigiani, R. Kirchner, E. Sovrnigo, A. Pozzato, M. Tormen, and H. Schiff, "Effect of nanoimprint on the elastic modulus of PMMA: comparison between standard and ultrafast thermal NIL," *Microelectron. Eng.*, vol. 155, pp. 85–91, 2016
17. R. Kirchner, V. A. Guzenko, I. Vartiainen, N. Chidambaram, and H. Schiff, "ZEP520A - A resist for electron-beam grayscale lithography and thermal reflow," *Microelectron. Eng.*, vol. 153, pp. 71–76, 2016
18. R. Kirchner and H. Schiff, "The ascent of high resolution and high volume 3D replication," *Microelectron. Eng.*, vol. 141, pp. 243–244, 2015
19. M. Mühlberger, M. Rohn, J. Danzberger, E. Sonntag, A. Rank, L. Schumm, R. Kirchner, C. Forsich, S. Gorb, B. Einwögerer, E. Trappl, D. Heim, H. Schiff, and I. Bergmair, "UV-NIL fabricated bio-inspired inlays for injection molding to influence the friction behaviour of ceramic surfaces," *Microelectron. Eng.*, vol. 141, pp. 140–144, 2015
20. R. Kirchner, V. A. Guzenko, M. Rohn, E. Sonntag, M. Mühlberger, I. Bergmair, and H. Schiff, "Bio-inspired 3D funnel structures made by grayscale electron-beam patterning and selective topography equilibration," *Microelectron. Eng.*, vol. 141, pp. 107–111, 2015
21. R. Kirchner and H. Schiff, "Mobility based 3D simulation of selective, viscoelastic polymer reflow using SURFACE EVOLVER," *J. Vac. Sci. Technol. B*, vol. 32, p. 06F701 (7pp), 2014
22. R. Kirchner, A. Schleunitz, and H. Schiff, "Energy-based thermal reflow simulation for 3D polymer shape prediction using Surface Evolver," *J. Micromech. Microeng.*, vol. 24, p. 055010 (7pp), 2014
23. R. Kirchner, A. Finn, R. Landgraf, L. Nueske, L. Teng, M. Vogler, and W.-J. Fischer, "Direct UV-Imprinting of Hybrid-Polymer Photonic Microring Resonators and their Characterization," *J. Lightwave Technol.*, vol. 32, no. 9, pp. 1674–1681, 2014
24. A. Schleunitz, V. Guzenko, M. Messerschmidt, H. Atasoy, R. Kirchner, and H. Schiff, "Novel 3D micro- and nanofabrication method using thermally activated selective topography equilibration (TASTE) of polymers," *Nano Converg.*, vol. 1:7, no. 7, pp. 1–8, 2014
25. L. Teng, M. Plötner, A. Türke, B. Adolphi, A. Finn, R. Kirchner, and W.-J. Fischer, "Nanoimprint assisted inkjet printing to fabricate sub-micron channel organic field effect transistors," *Microelectron. Eng.*, vol. 110, pp. 292–297, 2013
26. A. Finn, B. Lu, R. Kirchner, X. Thrun, K. Richter, and W.-J. Fischer, "High aspect ratio pattern collapse of polymeric UV-nano-imprint molds due to cleaning," *Microelectron. Eng.*, vol. 110, pp. 112–118, 2013

27. R. Landgraf, T. Haugwitz, R. Kirchner, and W.-J. Fischer, "Planar optical microring resonators used as biosensors: Guidelines for designing polymer-compared to semiconductor-based waveguides," *Proc. SPIE*, vol. 8561, p. 85610Q, 2012
28. A. Finn, R. Hensel, F. Hagemann, R. Kirchner, A. Jahn, and W.-J. Fischer, "Geometrical Properties of Multilayer Nano-Imprint-Lithography Molds for Optical Applications," *Microelectron. Eng.*, vol. 98, pp. 284–287, 2012
29. L. Teng, R. Kirchner, M. Plötner, A. Türke, A. Jahn, J. He, F. Hagemann, and W.-J. Fischer, "Fabrication and characterization of sub-500 nm channel organic field effect transistor using UV nanoimprint lithography with cheap Si-mold," *Microelectron. Eng.*, vol. 97, pp. 38–42, 2012
30. R. Kirchner, L. Nueske, A. Finn, B. Lu, and W.-J. Fischer, "Stamp-and-Repeat UV-Imprinting of Spin-Coated Films: Pre-Exposure and Imprint Defects," *Microelectron. Eng.*, vol. 97, pp. 117–121, 2012
31. R. Kirchner, A. Finn, R. Landgraf, L. Nueske, M. Vogler, and W.-J. Fischer, "UV-based Nanoimprint Lithography: Towards Direct Patterning of Functional Polymers," *J. Photopolym. Sci. Technol.*, vol. 25, no. 5, p. 197, 2012
32. R. Kirchner, L. Teng, B. Lu, B. Adolphi, and W.-J. Fischer, "Degradation of Perfluorotrichlorosilane Antisticking Layers: The Impact on Mold Cleaning, UV-Nanoimprinting, and Bonded UV-Nanoimprint Molds," *Jpn. J. Appl. Phys.*, vol. 50, p. 06GK13 (8pp), 2011
33. R. Kirchner, M.-K. Kaiser, B. Adolphi, R. Landgraf, and W.-J. Fischer, "Chemical functional polymers for direct UV assisted nanoimprinting of polymeric photonic microring resonators," *Phys. Status Solidi A*, vol. 208, no. 6, pp. 1308–1314, 2011
34. R. Kirchner, A. Finn, L. Teng, M. Ploetner, A. Jahn, L. Nueske, and W.-J. Fischer, "UV-Nanoimprinting Using Non-Transparent Molds and Non-Transparent Substrates," *Microelectron. Eng.*, vol. 88, pp. 2004–2008, 2011
35. R. Kirchner, B. Adolphi, R. Landgraf, and W.-J. Fischer, "Antisticking Layers on Antireflective Chromium for Hybrid (CNP) Nanoimprint Molds," *Proc. SPIE*, vol. 7545, pp. 7545–0U, 2010
36. J. Uhlemann and R. Kirchner, "Biokompatibilität in der Aufbau- und Verbindungstechnik der Elektronik - Teil 3," *PLUS*, vol. 11, pp. 1601–1621, 2009. [in German]

Journal contributions: 32

## Invited Presentations and Lectures

37. R. Kirchner, A. Schleunitz, R. Zhang, and H. Schiff, "Smart Origination and Functional Replication: Thermal Reflow and Innovative 3D Structures," in *36th International Conference of Photopolymer Science and Technology*, 2019
38. R. Kirchner, R. Hoekstra, N. Chidambaram, and H. Schiff, "Characterization and application of vertical material contrast generated by VUV exposure: making smooth 3D polymer micro-optics," in *25th Symposium on Photomask and Next Generation Lithography Mask Technology*, 2018
39. R. Kirchner, S. Neuhaus, P. M. Kristiansen, C. Padeste, J. Taniguchi, and H. Schiff, "Fabrication of shallow hydrophobic surfaces using high-resolution grayscale lithography and soft-mold imprint," in *NIL Industrial Day*, 2018
40. R. Kirchner, N. Chidambaram, M. Altana, and H. Schiff, "How post-processing by selective thermal reflow can reduce the roughness of 3D lithography in micro-optical lenses," in *SPIE Photonics West (subsection: 3D-Printing)*, 2017
41. N. Chidambaram, R. Kirchner, R. Hoekstra, L. Yu, M. Altana, and H. Schiff, "Tuning of polymeric surfaces for super-smooth micro-optical structures," in *14th BEAMS and MORE Workshop*, 2016
42. R. Kirchner and H. Schiff, "Origination and replication of 3D surface topographies: Electron beam lithography and nanoimprint," in *US-Singapore Bilateral Workshop on Nanomanufacturing*, 2016. Singapore 25.-26.02
43. R. Kirchner, "Micro- and Mesoscale Printing at PSI - Applications and some Solutions," in *Nanoscribe User Meeting Europe*, 2015
44. R. Kirchner and H. Schiff, "Partielle Reflow-Technik für optische 3-D Mikrostrukturen," in *Swiss MNT: Trends in Micro Nano*, 2015
45. R. Kirchner, R. Smits, and H. Schiff, "Thermal polymer reflow: Energy-based geometry evolution and 3D simulation," in *SLS Symposium on Soft Matter*, 2015
46. R. Kirchner and H. Schiff, "Electron beam lithography for self-optimizing polymer structures: fabrication and simulation," in *12th Workshop BEAMS & MORE*, 2014
47. R. Kirchner and H. Schiff, "Energy-based thermal reflow simulation for 3D pattern origination," in *4th NIL Industrial Day (Linz)*, 2014
48. R. Kirchner and H. Schiff, "Molding nano- and micropatterns for lithography and functional surfaces," in *CCMX Technology Aperitif: New Trends in Functional Structured Surfaces*, 2013. [invited talk]
49. R. Landgraf, R. Kirchner, A. Finn, and W.-J. Fischer, "Optical Biosensors Based on Polymer Micro Ring Resonators," in *presented: 2nd NaPaNIL-Industrial Day*, (Berlin), 28.02. 2012

50. R. Kirchner and A. Türke, "Using Ink-Jet Printing and Nanoimprinting for Microsystems," in *presented at Industrie-Partner-Symposium TU Dresden at Semicon Europe*, (Dresden), 06.10. 2010
51. R. Kirchner, "Nanoimprint Technology - Basics and Applications," in *presented at Summer School Microelectronics (Abu Dhabi - Dresden)*, 2010
52. R. Kirchner, "Nanoimprinting - Basics and Applications in Microsystems Technology," in *presented at 3. Colloquium Halbleitertechnologie / Mikroelektronik - Strukturierung in Mikroelektronik und Mikrosystemtechnik*, (Dresden), Silicon Saxony e. V., 08.06. 2009
53. R. Kirchner, "Nanoimprinting for high aspect ratio optical microsystems," in *presented at Industrie-Partner-Symposium TU Dresden at Semicon Europe*, (Dresden), 06.10.2009 2009

Invited presentations: 17

## Proceedings

54. H. Schiff, R. Kirchner, N. Chidambaram, and M. Altana, "Surface smoothening of the inherent roughness of micro-lenses fabricated with 2-photon lithography," *Proc. SPIE*, no. 10456, p. 9 pp, 2018
55. R. Kirchner, R. Hoekstra, N. Chidambaram, and H. Schiff, "Depth-profiling of vertical material contrast after VUV exposure for contact-free polishing of 3D polymer micro-optics," *Proc. SPIE 10446*, 2017
56. H. Schiff, N. Chidambaram, M. Altana, and R. Kirchner, "Selective surface smoothening of 3D micro-optical elements," in *Proc. SPIE*, vol. 10144, pp. 101440B-1 (7 pp), 2017
57. R. Kirchner, N. Chidambaram, M. Altana, and H. Schiff, "How post-processing by selective thermal reflow can reduce the roughness of 3D lithography in micro-optical lenses," in *Proc. SPIE*, vol. 10095, pp. 1009507-1 (9 pp), 2017
58. R. Kirchner and H. Schiff, "High resolution 3D topographic patterns using grayscale electron beam lithography and thermal reflow," in *Proc. 3rd Int. Conf. Polymer Replication on Nanoscale*, 2016
59. N. Chidambaram, R. Kirchner, M. Altana, S. Neuhaus, M. Kristiansen, and H. Schiff, "Surface confined equilibration for super-smooth surfaces," in *Proc. 3rd Int. Conf. Polymer Replication on Nanoscale (PRN)*, 2016
60. R. Kirchner and H. Schiff, "High resolution, hybrid 3D topography fabrication using grayscale electron beam lithography," in *Proc. 60th Int. Conf. Electron, Ion and Photon Beam Technology and Nanofabrication*, 2016
61. N. Chidambaram, R. Kirchner, M. Altana, S. Neuhaus, M. Kristiansen, and H. Schiff, "Surface confined equilibration for super-smooth surfaces," in *Proc. 60th Int. Conf. on Electron, Photon and Ion Beam Technology and Nanofabrication*, 2016
62. N. Chidambaram, R. Kirchner, M. Altana, and H. Schiff, "High fidelity 3D thermal nanoimprint with UV curable PDMS stamps," in *Proc. 60th Int. Conf. Electron, Ion and Photon Beam Technology and Nanofabrication*, 2016
63. R. Fallica, D. Mailly, R. Kirchner, and Y. Ekinici, "A comparative study of resists and lithographic tools using Lumped Parameter Model," in *Proc. 60th Int. Conf. on Electron, Photon and Ion Beam Technology and Nanofabrication*, 2016
64. S. Pfirrmann, R. Kirchner, O. Lohse, V. A. Guzenko, A. Voigt, I. Harder, A. Kolander, H. Schiff, and G. Grützner, "mr-PosEBR - A novel positive tone resist for high resolution electron beam lithography and 3D surface patterning," *Proc. SPIE*, vol. 9779, p. 977925 (13pp), 2016

65. R. Kirchner, I. Vartiainen, V. Guzenko, and H. Schiff, "ZEP 520A as combined electron beam grayscale and selective thermal reflow resist," in *Proc. 14th Int. Conf. Nanoimprint and Nanoprint Technology*, 2015
66. H. Schiff, M. Pianigiani, R. Kirchner, A. Pozzato, E. Sovernig, and M. Tormen, "Does pulsed NIL affect thermoplastic polymer properties in the same way as standard NIL?," in *Proc. 14th Int. Conf. Nanoimprint and Nanoprint Technology (NNT)*, 2015
67. R. Kirchner, I. Vartiainen, V. Guzenko, and H. Schiff, "Resist strategies for 3D electron beam grayscale and reflow patterning," in *Proc. 41st Int. Conf. Micro and Nano Engineering (MNE)*, 2015
68. M. Pianigiani, R. Kirchner, E. Sovernigo, M. Tormen, and H. Schiff, "Effects of T-NIL on the mechanical properties of PMMA: a comparison between standard T-NIL and ultrafast T-NIL," in *Proc. 41st Int. Conf. Micro and Nano Engineering (MNE)*, 2015
69. R. Kirchner, H. Schiff, E. Sonntag, M. Rohn, I. Bergmair, and M. Mühlberger, "Fabrication of bio-inspired replication masters and mobility based full 3D reflow simulation," in *Proc. 12th Int. Conf. Nanoimprint and Nanoprint Technology (Kyoto)*, 2014
70. R. Kirchner, V. Guzenko, R. Smits, and H. Schiff, "Selective Thermal Reflow: Impact of Scaling on Patterning and 3D Simulation," in *Proc. 40th Int. Conf. Micro-Nano-Engineering (Lausanne)*, 2014
71. R. Kirchner, V. A. Guzenko, M. Rohn, E. Sonntag, M. Mühlberger, I. Bergmair, and H. Schiff, "Bio-inspired 3D funnel structures made by grayscale electron-beam patterning and selective topography equilibration," in *Proc. 40th Int. Conf. Micro-Nano-Engineering (Lausanne)*, 2014
72. M. Rohn, J. Danzberger, E. Sonntag, C. Forsich, R. Kirchner, A. Rank, B. Einwögerer, M. Mühlberger, E. Trapple, D. Heim, H. Schiff, and I. Bergmair, "UV-NIL fabricated bio-inspired inlays for injection molding to influence the friction behaviour of ceramic surfaces," in *Proc. 40th Int. Conf. Micro-Nano-Engineering (Lausanne)*, 2014
73. R. Kirchner and H. Schiff, "Energy-based geometry evolution and 3D simulation of thermal polymer reflow," in *Proc. 58th Int. Conf. on Electron, Ion, and Photon Beam Technology and Nanofabrication*, 2014
74. R. Kirchner, A. Schleunitz, and H. Schiff, "Curvature Prediction during Defined Reflow of Electron-beam Grayscale Profiles," in *Proc. 12th Int. Conf. Nanoimprint and Nanoprint Technology*, 2013



75. R. Kirchner, A. Schleunitz, and H. Schift, "Thermal Reflow Simulation of 3D and Multilevel Polymer Patterns for Shape Prediction," in *Proc. 39th Int. Conf. Micro-Nano-Engineering (London)*, 2013
76. A. Finn, R. Kirchner, R. Landgraf, A. Hiess, X. Thrun, L. Nüske, and W.-J. Fischer, "Stamp-and-Repeat UV Direct Patterning using Polymer Molds," in *presented at 10th Int. Workshop on High Aspect Ratio Micro and Nano System Technology*, 2013
77. R. Landgraf, T. Haugwitz, R. Kirchner, and W.-J. Fischer, "Planar optical microring resonators used as biosensors: Guidelines for designing polymer-compared to semiconductor-based waveguides," in *Proc. Photonics Asia 2012 (Advanced Sensor Systems and Applications V)*, 2012
78. R. Kirchner, A. Finn, A. Chares, M. Vogler, and W.-J. Fischer, "Influence of Solvent Removal and UV-exposure on Feature Shrinkage in UV-NIL Direct Patterning," in *Proc. 11th Int. Conf. on Nanoimprint and Nanoprint Technology*, 2012
79. R. Kirchner, R. Landgraf, A. Finn, M. Vogler, and W.-J. Fischer, "Simple UV direct imprinting of photonic microring resonators with high quality from spin coated hybrid-polymer films," in *Proc. 11th Int. Conf. on Nanoimprint and Nanoprint Technology*, 2012
80. L. Teng, M. Plötner, R. Kirchner, A. Finn, A. Türke, and W.-J. Fischer, "Alternative Photolithography Techniques to Fabricate Short Channel Organic Field Effect Transistor," in *Proc. 38th Int. Conf. on Micro and Nano Engineering 2012 (MNE 2012)*, 2012
81. A. Finn, B. Lu, R. Kirchner, K. Richter, and W.-J. Fischer, "Cleaning Defects of Soft UV-Nanoimprint Molds for High Aspect-Ratio Features," in *Proc. 56th Int. Conf. on Electron, Ion, and Photon Beam Technology and Nanofabrication (EIPBN)*, 2012
82. L. Teng, R. Kirchner, M. Plötner, A. Jahn, A. Türke, J. He, Y. Ge, F. Hagemann, and W.-J. Fischer, "Experimental Investigation on Short Channel Effect of Nano-Imprinted Organic Field Effect Transistors," in *Proc. 56th Int. Conf. on Electron, Ion, and Photon Beam Technology and Nanofabrication (EIPBN)*, 2012
83. R. Landgraf, R. Kirchner, A. Finn, S. Arndt, T. Haugwitz, F. Deicke, and W.-J. Fischer, "Polymer Microring Resonator Directly Patterned by Multilevel-Nanoimprint: Integration into Biosensor System with Miniaturized Microfluidic System," in *Sensoren und Messsysteme 2012*, 2012
84. R. Kirchner, L. Teng, A. Finn, and W.-J. Fischer, "UV-assisted Nanoimprinting using Opaque Molds and Substrates," in *Proc. 1st Annual World Congress of Nano-Science&Technology (NANO-S&T2011)*, (Dalian), October 2011. [invited talk]

85. R. Kirchner, L. Nueske, A. Finn, B. Lu, and W.-J. Fischer, "Stamp-and-Repeat UV-Imprinting of Spin-Coated Films: Pre-Exposure and Imprint Defects," in *Proc. 37th Int. Conf. on Micro and Nano Engineering 2011 (MNE 2011)*, 2011
86. A. Finn, F. Hagemann, R. Hensel, R. Kirchner, A. Jahn, and W.-J. Fischer, "Characterisation of the Geometrical Properties of Multilayer Nano-Imprint-Lithography Molds for Optical Applications," in *Proc. 37th Int. Conf. on Micro and Nano Engineering 2011 (MNE 2011)*, 2011. [submitted to Microelectron. Eng.]
87. L. Teng, R. Kirchner, M. Ploetner, J. He, A. Jahn, F. Hagemann, and W.-J. Fischer, "Fabrication and Characterization of Sub-500 nm Channel Organic Field Effect Transistor Using UV Nanoimprint Lithography With Opaque Molds," in *Proc. 37th Int. Conf. on Micro and Nano Engineering 2011*, 2011. [submitted to Microelectron. Eng.]
88. R. Landgraf, A. Finn, R. Kirchner, T. Haugwitz, S. Arndt, F. Deicke, and W.-J. Fischer, "Biosensor System with Polymer Microring Resonators Manufactured by Multilevel-UV-Nanoimprint," in *Proc. Mikro-System-Technik Kongress 2011*, pp. 90–93, 2011
89. R. Landgraf, T. Haugwitz, R. Kirchner, A. Finn, and W.-J. Fischer, "Planar Optical Waveguide Design for UV-Nanoimprinted Microring Resonator Based Biosensors," in *Proc. IEEE Sensors 2011*, pp. 596–599, 2011
90. R. Kirchner, A. Kleiner, B. Adolphi, and W.-J. Fischer, "Comparison of silane monolayers on fused silica and chromium-oxi-nitride surfaces by angle resolved photoelectron spectroscopy and a new multi-layer model," in *Proc. Engineering of Functional Interfaces (EnFI)*, (Linz), pp. 23–24, 19.-20.07. 2011
91. L. Teng, R. Kirchner, M. Ploetner, A. Jahn, J. He, F. Hagemann, and W.-J. Fischer, "Fabrication of Sub-500 nm Source and Drain Electrodes for Organic Field Effect Transistors using UV Nanoimprint Lithography with Low-Cost Silicon Mold and Lift-Off Process," in *3rd GMM Workshop Mikro-Nano-Integration*, vol. GMM Fachbericht 68, pp. 84–89, VDE Verlag GmbH, 3th-4th March 2011. ISBN 978-3-8007-3334-7 [in English]
92. A. Finn, A. Jahn, R. Kirchner, U. Künzelmann, J. He, M. Waegner, and W.-J. Fischer, "Multilayer Nano-Imprint-Lithography Mold Fabrication Process," in *3rd GMM Workshop Mikro-Nano-Integration*, vol. GMM Fachbericht 68, pp. 8–12, VDE Verlag GmbH, 3th-4th March 2011. ISBN 978-3-8007-3334-7 [in English]
93. R. Kirchner, L. Teng, B. Lu, B. Adolphi, and W.-J. Fischer, "Degradation of Perfluorotrichlorosilane Antisticking Layers and the Impact on Bonded UV-Nanoimprint Molds, Mold Cleaning, and UV-Nanoimprinting ," in *Proc. 23rd Internat. Microprocesses and Nanotechnology Conf.*, (Kokura / Fukuoka), 09.-12.11.2010 2010. 12D-11-99

94. R. Kirchner, R. Kullock, L. M. Eng, and W.-J. Fischer, "Residual Layer Free Polymer Waveguides and Microring Resonators Realized with UV-assisted Nanoimprint," in *Proc. 9th Internat. Conf. on Nanoimprint and Nanoprint Technology*, pp. 88–89, 2010
95. R. Kirchner, A. Finn, L. Teng, M. Ploetner, A. Jahn, L. Nueske, and W.-J. Fischer, "UV Nanoimprinting Using Non-Transparent Molds and Non-Transparent Substrates," in *Proc. 36th Int. Conf. on Micro and Nano Engineering 2010 (MNE 2010)*, 2010. P-LITH-92
96. R. Kirchner, M.-K. Kaiser, B. Adolphi, R. Landgraf, and W.-J. Fischer, "Chemical Functional Polymers for Direct UV Assisted Nanoimprinting of a Polymeric Photonic Biosensor," in *Proc. Engineering of Functional Interfaces*, (Rauischholzhausen / Marburg), p. 59, 15.-16.07.2010 2010. Paper 3.6
97. R. Kirchner, R. Landgraf, M. Bertram, and W.-J. Fischer, "Direct UV-nanoimprint of polymer microring resonators as optical transducers," in *Proc. 2nd Workshop Mikro-Nano-Integration*, pp. 153–158, VDE Verlag GmbH, 2010. ISBN: 978-3-8007-3216-6 [in English]
98. R. Kirchner, B. Adolphi, R. Landgraf, and W.-J. Fischer, "Antisticking Layers on Antireflective Chromium for Hybrid (CNP) Nanoimprint Molds," in *Proc. 26th European Mask and Lithography Conference*, pp. 70–73, 2010
99. R. Kirchner, L. Teng, and W.-J. Fischer, "Multi-usable, adhesively bonded UV-NIL templates," in *Proc. 8th Internat. Conf. on Nanoimprint and Nanoprint Technology*, p. p52, 2009
100. R. Kirchner, M.-K. Kaiser, B. Adolphi, and W.-J. Fischer, "Characterization of chemically functional UV-NIL polymers for sensorics and bioanalytics," in *Proc. 6. Deutsches BioSensor Symp.*, (Freiburg), pp. 134–135, 29.03.-01.04.2009, 2009
101. R. Kirchner, M.-K. Kaiser, B. Adolphi, R. Landgraf, and W.-J. Fischer, "Imprinting of chemical functionalized acrylates for bioanalytics," in *Proc. 6th nanomed*, (Berlin), p. 127, 04.-06.03.2009 2009. ISBN 978-3-00-027401-5
102. R. Kirchner, J. Uhlemann, K.-J. Wolter, S. Kolba, A. Beyer, and G. Vollmer, "New Test Method for Cytotoxicity Assessment of Extracts of Electronic Packaging Materials," in *Biomed. Tech.*, vol. 52 (Ergänzungsband), p. Poster 48101, 2007. ISSN 0939-4990

Proceeding contributions: 49

## Conferences and Workshops

103. R. Kirchner, N. Chidambaram, M. Altana, and H. Schiff, "Surface smoothening in micro-optical lenses by selective thermal reflow," in *634. WE-Heraeus Seminar: Merging Micro- and Nano-Optics: 3D Printing for Advanced and Functional Optics*, 2017
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