List of Publications

Dr.-Ing. Helmut Schift

Journal Publications: Refereed Papers

1. N. Chidambaram, R. Kirchner, R. Fallica, L. Yu, M. Altana, **H. Schift**, *Selective surface smoothening of polymer microlenses by depth confined softening*, Advanced Materials Technologies, accepted (2017).
2. V. Cadarso, N. Chidambaram, L. Jacot-Descombes, and **H. Schift**, *High aspect ratio nanoimprint process chains*, Nature Microsystems & Nanoengineering, accepted (2017).
3. D. Virganavičius, M. Juodėnas, T. Tamulevicius, **H. Schift**, S. Tamulevičius, *Investigation of assembly yield transient dynamics during capillary assisted particle assembly*, Applied Surface Science, in print (21/02/2017).
4. L. Romano, J. Vila-Comamala, M. Kagias, K. Vogelsang, **H. Schift**, M. Stampanoni, K. Jefimovs, *High aspect ratio metal microcasting by hot embossing for X-ray optics fabrication*, Microelectron. Eng. **176** (2017) 6-10.
5. R. Fallica, R. Kirchner, **H. Schift**, and Y. Ekinci, *High-resolution greyscale patterning using extreme ultraviolet interference lithography*, Microelectron. Eng. **177** (2017) 1-5.
6. N. Chidambaram, R. Kirchner, M. Altana, and **H. Schift**, *High fidelity 3D thermal nanoimprint with UV curable polydimethyl siloxane stamps*, J. Vac. Sci. Technol. B **34**, (2016) 06K401 (6 pp) – including cover page JVST B (11/2016).
7. D. Virganavicius, V.J. Cadarso, R. Kirchner, L. Stankevičius, T. Tamulevičius, S. Tamulevicius, and **H. Schift**, *Patterning of diamond like carbon films using silicon containing thermoplastic resist (SiPol) as hard mask*, Appl. Surf. Sci. **385** (2016) 145-152.
8. M. Pianigiani, R. Kirchner, E. Sovernigo, A. Pozzato, M. Tormen, and **H. Schift**, *Effect of nanoimprint on the elastic modulus of PMMA: comparison between standard and ultrafast thermal NIL*, Microelectron. Eng. **155** (2016) 85-91.
9. R. Kirchner, V.A. Guzenko, I. Vartiainen, N. Chidambaram, and **H. Schift**, *ZEP520A - a resist for electron-beam grayscale lithography and thermal reflow*, Microelectron. Eng. **153** (2016) 71-76.
10. V.J. Cadarso, A. Llobera, M. Puyol, and **H. Schift**, *Integrated photonic nanofences: combining subwavelength waveguides with enhanced evanescent field for sensing applications*, ACS Nano **10** (2016) 778–785, DOI:10.1021/acsnano.5b05864.
11. **H. Schift**, *Nanoimprint lithography - 2D or not 2D – A review*, J. Appl. Phys. **121**(2) (2015) 415-435, DOI:10.1007/s00339-015-9106-3.
12. L. Jacot-Descombes, V. Cadarso, A. Schleunitz, S. Grützner, J.J. Klein, J. Brugger, **H. Schift**, G. Grützner, *Organic-inorganic-hybrid-polymer microlens arrays with tailored optical characteristics and multi-focal properties*, Optics Express **23**(19)(2015) 25365-75. DOI:10.1364/OE.23.025365.
13. D.M. Jarzabek, D. Siewert, W. Fabianowski, **H. Schift**, Z. Rymuza, T. Jung, *Influence of alkali ions on tribological properties of silicon surface*, Tribology Letters **60**(2) 2015.
14. R. Kirchner, V. A. Guzenko, M. Rohn, E. Sonntag, M. Muehlberger, I. Bergmair, **H. Schift**, *Bio-inspired 3D funnel structures made by grayscale electron-beam patterning and selective topography equilibration*, Microelectron. Eng. **141** (2015) 107-111. DOI: 10.1016/j.mee.2015.02.014
15. 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. Schift**, I. Bergmair, *UV-NIL fabricated bio-inspired inlays for injection molding to influence the friction behaviour of ceramic surfaces*, Microelectron. Eng. **141** (2015) 140-144. DOI: 10.1016/j.mee.2015.02.051
16. P. Urwyler, A. Pascual, B. Müller, and **H. Schift**, *Ultraviolet-ozone surface cleaning of injection-molded, thermoplastic microcantilevers*, J. Appl. Polym. Sci. **132**(18) (2015) 5885-94 (9pp), DOI: 10.1002/app.41922.

17. R. Kirchner and **H. Schift**, *Mobility based 3D simulation of selective, viscoelastic polymer reflow using Surface Evolver*, J. Vac. Sci. Technol. **32**(6) 06F701 (2014) (7pp.).

18. S. Bellini, C. Padeste, D. Siewert, and **H. Schift**, *Anti-sticking layers for nickel-based nanoreplication tools*, Microelectron. Eng. **123**, 23–27 (2014).

19. **H. Schift**, *Nanoimprint lithography and micro-embossing in LiGA technology: similarities and differences*, J. Microsystem Technologies **20**(10-11) (2014) 1733-1781, DOI: 10.1007/s00542-013-1915-8 (9 pp.).

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22. A. Schleunitz, V.A. Guzenko, M. Messerschmidt, H. Atasoy, R. Kirchner, and **H. Schift**, *Novel 3D micro- and nanofabrication method using thermally activated selective topography equilibration (TASTE) of polymers*, Nano Convergence (2014) **1**:7.

23. P. Urwyler, X. Zhao, A. Pascual, **H. Schift** and B. Müller, *Tailoring surface nanostructures on polyaryletherketones for load-bearing implants*, Eur. J. Nanomed. **6**(1) (2014) 37–46, DOI: 10.1515/ejnm-2014-0006

24. **H. Schift**, *Nanoimprint lithography and micro-embossing in LiGA technology: similarities and differences*, J. Microsystem Technologies (2013), DOI: 10.1007/s00542-013-1915-8 (9 pp.).

25. D.M. Jarząbek, A.N. Kaufmann, **H. Schift** Z. Rymuza, and T.A. Jung, *Elastic modulus and fracture strength evaluation one the nanoscale by scanning force microscope experiments*, Nanotechnology **25**, 215701 (2014) (9pp).

26. L. Wang, **H. Schift**, J. Gobrecht, and Y. Ekinci, P. M. Kristiansen, H. H. Solak, and K. Jefimovs, *High-throughput fabrication of compact and flexible bilayer nanowire grid polarizers for deep-ultraviolet to infrared range*, J. Vac. Sci. Technol. **B 32**, 031206 (2014); DOI: 10.1116/1.4874318

27. R. Kirchner, A. Schleunitz, and **H. Schift**, *Energy-based thermal reflow simulation for 3D polymer shape prediction using the surface evolver*, J. Micromech. Microeng. **24**(5) (2014) 055010 (7pp).

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31. A. Schleunitz, M. Vogler, I. Fernandez-Cuesta, **H. Schift**, and G. Gruetzner, *Innovative and tailor-made resist and working stamp materials for advancing NIL-based production technology*, J. Photopolym. Sci. Technol. (Japan) **26**(1) 119-124 (2013).

32. **H. Schift**, M. Altana, and A. Schleunitz, *Sidewall-angle dependent mold filling of three-dimensional microcavities in thermal nanoimprint lithography*, J. Vac. Sci. Technol. B **30**(6) 06FB09 (2012); DOI:10.1116/1.4764096.

33. M. Messerschmidt, A. Schleunitz, C. Spreu, T. Werner, M. Vogler, F. Reuther, A. Bertz, **H. Schift**, and G. Grützner, *Thermal nanoimprint resist for the fabrication of high-aspect-ratio patterns*, Microelectron. Eng. **98**(8) 107-111 (2012), DOI:10.1016/j.mee.2012.07.098.

34. P. Urwyler, J. Köser, **H. Schift**, J. Gobrecht, and B. Müller, *Nano-mechanical transduction of polymer micro-cantilevers to detect bio-molecular interactions*, Biointerfaces **7**, SpringerOpen **6** (8 pp.) (2012), DOI 10.1007/s13758-011-0006-6.

35. A. Schleunitz, V.A. Guzenko, A. Schander, M. Vogler, and **H. Schift**, *Selective profile transformation of electron-beam exposed multilevel resist structures based on a molecular weight dependent thermal reflow*, J. Vac. Sci. Technol. B **29**(6) 06F302 (2011); DOI:10.1016/j.mee.2010.12.046 (*4 pp*).

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37. H. Atasoy, M. Vogler, T. Haatainen, A. Schleunitz, D. Jarząbek, **H. Schift**, F. Reuther, G. Gruetzner, and Z. Rymuza, *Novel thermoplastic polymers with improved release properties for thermal NIL*, Microelectron. Eng. **88**(8) 1902-1905 (2011); DOI: 10.1016/j.mee.2011.01.080.

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43. A. Schleunitz, C. Spreu, T. Haatainen, A. Klukowska, and **H. Schift**, *Fabrication of mesas with micro- and nanopatterned surface relief used as working stamps for step & stamp imprint lithography*, J. Vac. Sci. Technol. B **28**(6) C6M37-40 (2010); DOI:10.1116/1.3497022 (4 pp).

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46. **H. Schift**, C. Spreu, M. Saidani, M. Bednarzik, J. Gobrecht, A. Klukowska, F. Reuther, G. Gruetzner, and H.H. Solak, *Transparent hybrid polymer stamp copies with sub-50 nm resolution for thermal and UV-nanoimprint lithography*, J. Vac. Sci. Technol. B **27**(6), 2846-2849 (2009), DOI: 10.1116/1.3250207.

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Journal Publications: Non-Refereed Papers

1. R. Kirchner, N. Chidambaram, M. Altana, and **H. Schift**, *Reducing the roughness of 3D micro-optics*, 3 January 2017, SPIE Newsroom (Micro/Nano Lithography, SPIE Photonics West 2/2017); DOI: 10.1117/2.1201611.006788.
2. R. Kirchner, N. Chidambaram, M. Altana, and **H. Schift**, How post-processing by selective thermal reflow can reduce the roughness of 3D lithography in micro-optical lenses, Proc. SPIE **10095**-5, Photonics West, San Francisco, CA (28 Jan. - 2 Feb. 2017).
3. **H. Schift**, N. Chidambaram, M. Altana, and R. Kirchner, Selective surface smoothening of 3D micro-optical elements, Proc. SPIE **10144**-10, Advanced Lithography, San Jose, CA (26 Feb. - 2 Mar. 2017).
4. **H. Schift**, *Nanoimprint lithography: the (planar) world is not enough*, Proc. 4M/IWMF2016 (2016) 11-15 (5pp).
5. S. Pfirrmann, R. Kirchner, O. Lohse, V.A. Guzenko, A. Voigt, L .Harder, A. Kolander, **H. Schift**, and G. Grützner, *mr-PosEBR – A novel positive tone resist for high resolution electron beam lithography and 3D surface patterning*, Proc. SPIE **9779** (2016) 977925 (13pp).
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