

# Publications

## 2018

- [1] **S. Kroker**, High-precision sensing with metasurfaces, Bundesweite Exkursion der jDPG, Braunschweig, 09.04.2018. [Invited Talk]
- [2] C. B. Rojas Hurtado, J. Dickmann, W. Dickmann, **S. Kroker**, All-optical control in dielectric bilayer optical surfaces via optomechanical interaction, Lasers and Electro-Optics Conference 2931118 (2018).
- [3] T. Siefke, W. Dickmann, T. Weichelt, M. Steinert, J. Dickmann, C.B. Rojas Hurtado, B. Bodermann, **S. Kroker**, Determination of structural deviations in wire grid polarizers for DUV application wavelengths by transmission spectroscopy in the visible spectral range, SPIE Photonics Europe Proc. EPE18-EPE108-6 (2018).
- [4] **S. Kroker**, J. Dickmann, C.B. Rojas Hurtado, R. Glaser, D. Heinert, W. Dickmann, Yu. Levin, R. Nawrodt, M. Togulukov, S. Vyatchanin, Thermal noise in complex systems, Gravitational Waves Science & Technology Symposium, Padova, Italy, 01.03.-02.03.2018. [Talk]
- [5] **S. Kroker**, Optical micro-and nanostructures for metrological applications, Seminar Talk, Università del Sannio, Benevento, Italy, 22.02.2018 [Invited Talk]
- [6] D. Lin, H. Chen, Z. Liu, K. Dietrich, **S. Kroker**, T. Käsebier, Y. Liu, E.-B. Kley, Reducing Rowland ghosts in diffraction gratings by dynamic exposure near-field holography, Optics Letters 43 811-814 (2018).
- [7] J. Meyer J. Meyer, J. Dickmann, M. Kruskopf, T. Siefke, **S. Kroker**, Setup for the measurement of stress-induced optical birefringence, DPG Spring Meeting, Erlangen, 04.03.-09.03.2018. [Talk]
- [8] J. Dickmann, **S. Kroker**, Noise Performance of Metamirrors, DPG Spring Meeting, Erlangen, 04.03.-09.03.2018. [Talk]
- [9] W. Dickmann, T. Siefke, J. Dickmann, C.B. Rojas Hurtado, **S. Kroker**, Fabrication Process Control of nanoscaled Wire Grid Polarizers for the Deep Ultraviolet by Transmission Spectroscopy in the Visible Spectral Range, DPG Spring Meeting, Erlangen, 04.03.-09.03.2018. [Talk]
- [10] T. Käseberg, J. Dickmann, M. Kruskopf, T. Siefke, **S. Kroker**, Angular dependent polarization properties of graphene on nanostructured silicon carbide, DPG Spring Meeting, Erlangen, 04.03.-09.03.2018. [Poster]
- [11] C. B. Rojas Hurtado, J. Dickmann, W. Dickmann, **S. Kroker**, Investigation of silicon optical nanostructures for light modulation by optical forces, DPG Spring Meeting, Erlangen, 04.03.-09.03.2018. [Talk]
- [12] D. Bezshlyakh, J. Gülink, J. Langfahl-Klabes, C. Rojas Hurtado, U. Brand, **S. Kroker**, H. S. Wasisto, A. Waag, Integrated micro-optics for efficiency enhancement of micro-light-emitting devices, Europtrode XIV, Napoli, Italy 25.03.-28.03.2018. [Talk]
- [13] T. Siefke, **S. Kroker**, Polarization control by deep ultra violet wire grid polarizers in

Optical characterization of thin film coatings by O. Stenzel and M. Ohlídahl, Springer, 359-374 (2018).

- [14] **S. Kroker**, T. Siefke, „Optical Characterization of waveguide coatings“ in Optical characterization of thin film coatings by O. Stenzel and M. Ohlídahl, Springer, 341-358 (2018).

## 2017

- [1] Z. Samsonova, S. Höfer, V. Kaymak, S. Alisauskas, I. Uschmann, **S. Kroker**, O. Rosmej, L. Trefflich, A. Pugzlys, C. Ronning, A. Pukhov, A. Baltuska, C. Spielmann, D. Kartashov, “Relativistic nanophotonics in long-wavelength regime”, International Conference on High Intensity Lasers in Israel (CHILI), Tel Aviv 12/2017. [Talk]
- [2] **S. Kroker**, “Investigation of optomechanical material properties for high-precision experiments”, DSPE Optics Week, Aachen 23.-26.10.2017. [Invited Talk]
- [3] **S. Kroker**, “Wire grid polarizers for the DUV und VUV spectral range”, EUV2017, Berlin 19.-20.10.2017. [Invited Talk]
- [4] Z. Samsonova, S. Höfer, V. Kaymak, A. Hofmann, S. Alisauskas, I. Uschmann, **S. Kroker**, O. Rosmej, L. Trefflich, A. Pugzlys, C. Ronning, A. Pukhov, A. Baltuska, C. Spielmann, D. Kartashov “Relativistic interaction of nanostructured solids with short and long wavelength ultrashort laser pulses,” 10th International Conference on Inertial Fusion Sciences and Applications, Saint Malo, France 09/2017. [Talk]
- [5] **S. Kroker**, „Meta-surface enhanced optical metrology“, AvH-JAGFOS-Symposium, Bad Neuenahr, 21.-24.09.2017. [Poster]
- [6] W. Wu, G. Scholz, J. Gülink, C.B. Rojas Hurtado, J. D. Prades, **S. Kroker**, R. Macdonald, H. S. Wasisto, A. Waag, “Nanostructured color filter based wearable optobiomedical sensor for non-invasive diagnosis”, Nanophotonics and Micro/Nano Optics International Conference, Barcelona / Spain 13.09.2017 – 15.09.2017. [Talk]
- [7] J. Dickmann, C. B. Rojas Hurtado, R. Nawrodt, **S. Kroker**, “Influence of polarization and material on Brownian thermal noise of binary grating reflectors”, Physics Letters A, in press.
- [8] T. Siefke C. B. Rojas Hurtado, J. Dickmann, M. Heusinger, **S. Kroker**, “Simulation of the Influence of Line Edge Roughness on the Performance of Deep Ultra Violet Wire Grid Polarizers“, SPIE Optical Metrology 10330-30 (2017).
- [9] **S. Kroker**, J. Dickmann, C. B. Rojas Hurtado, D. Heinert, R. Nawrodt, Y. Levin, S. P. Vyatchanin, “Brownian Thermal Noise in Functional Optical Surfaces”, Physical Review D 96 (2017).
- [10] G. Cagnoli, M. Lorenzini, E. Cesarini, F. Piergiovanni, M. Granata, D. Heinert, F. Martelli, R. Nawrodt, A. Amato, Q. Cassar, J. Dickmann, **S. Kroker**, D. Lumaca, C. Malhaire, C. B. Rojas Hurtado, “Mode-dependent mechanical losses in disc resonators”, Physics Letters A, in press.

- [11] S. Völker, **S. Kroker**, R. Nawrodt, „Moderne Wissenschaft spielerisch erleben – Wir bauen einen Gravitationswellendetektor“, *Astronomie und Raumfahrt* 54 (2017).
- [12] R. Hollinger, Z. Samonva, S. Höfer, D. Kartashov, S. Alisauskas, V. Shumakova, A. Pugžlys, A. Baltuska, R. Röder, C. Ronning, **S. Kroker**, C. Spielmann, Interaction of nanostructured materials with intense mid-IR pulses, 7th European Conference on Application of Femtosecond Lasers in Material Science, Mauterndorf, Austria March (2017) [Talk]
- [13] T. Siefke, C. B. Rojas Hurtado, J. Dickmann, M. Heusinger, **S. Kroker**, “Simulation of the Influence of Line Edge Roughness on the Performance of Deep Ultra Violet Wire Grid Polarizers”, SPIE Optical metrology, München, 25.06.-28.06.2017. [Invited Talk]
- [14] **S. Kroker**, “Precision length measurements at different scales”, AvH- SinoGFOS-Symposium, Potsdam, 18.-21.05.2017. [Invited Talk]
- [15] **S. Kroker**, “Optical nanostructures for metrology”, AvH- SinoGFOS-Symposium, Potsdam, 18.-21.05.2017. [Poster]
- [16] K. Knupfer, R. Glaser, M. Mäusezahl, F. Ritschel, **S. Kroker**, L. Maczewsky, F. Schmidl, R. Nawrodt, “Mechanical loss measurements of GaAs at cryogenic temperatures”, GWADW, Hamilton Island / Australia, 14.05.-19.05.2017. [Poster]
- [17] Z. Samsonova, S. Höfer, I. Uschmann, V. Kaymak, S. Ališauskas, A. Pugžlys, L. Trefflich, **S. Kroker**, C. Ronning, A. Pukhov, A. Baltuška, E. Förster, C. Spielmann, D. Kartashov, “X-ray emission from nanostructured targets irradiated by a relativistically intense mid-infrared driver”, CLEO Europe, München, 25.-29.06.2017. [Talk]
- [18] C. B. Rojas Hurtado, T. Siefke, J. Dickmann, **S. Kroker**, “Structural Information and Performance Prediction of Nano-optical Wire Grid Polarizers Based on Guided Mode Resonances, SPIE Optical metrology, München, 25.06.28.06.2017. [Talk]
- [19] C. B. Rojas Hurtado, J. Dickmann, T. Siefke, **S. Kroker**, „Asymmetry induced resonances for performance prediction of short wavelength periodic nanostructures“, DPG Spring Meeting Mainz, 06.-10.03.2017. [Poster]
- [20] R. Glaser, **S. Kroker**, J. Dickmann, C. B. Rojas Hurtado, R. Nawrodt, „Silicon as an optical material for precision applications at cryogenic temperatures“, DPG Spring Meeting, Dresden, 19.–24.03.2017. [Poster]
- [21] F. Ritschel, R. Glaser, **S. Kroker**, J. Dickmann, C. B. Rojas Hurtado, R. Nawrodt, „Optical properties of silicon at low temperatures“, DPG Spring Meeting, Dresden, 19.–24.03.2017. [Poster]

## 2016

- [1] T. Siefke, **S. Kroker**, K. Pfeiffer, O. Puffky, K. Dietrich, D. Franta, I. Ohlídal, A. Szeghalmi, E.-B. Kley, A. Tünnermann, „Materials Pushing the Application Limits of Wire Grid Polarizers further into the Deep Ultraviolet Spectral Range“, *Advanced Optical Materials* 4, 1780-1786 (2016).

- [2] Y. Li, H. Chen, **S. Kroker**, T. Käsebier, Z. Liu, K. Qiu, Y. Liu, E.-B. Kley, X. Xu, Y. Hong, S. Fu, „Near field holography enhanced with antireflection coatings: An improved method for fabricating diffraction gratings“, Chinese Optics Letters 14, 90501 (2016).
- [3] T. Siefke, E.-B. Kley, A. Tünnermann, **S. Kroker**, „Design and fabrication of titanium dioxide wire grid polarizer for the far ultraviolet spectral range“, Proc. SPIE 9927-5 (2016).
- [4] **S. Kroker**, “Kleine Strukturen für hochgenaue Messungen – wie Nanotechnologie uns hilft, kleinsten Längen im Kosmos nachzuspüren“, KTW-Ringvorlesung, TU Braunschweig, 28.11.2016 [Invited Talk]
- [5] **S. Kroker**, „Optical waveguide coatings“, International Workshop for Optical Coating Characterisation, Brno, Czech Republic, 11.10- 13.10.2016. [Invited Talk]
- [6] **S. Kroker**, „Gravitational Wave Astronomy. Bringing the sensitivity of future detectors to the Quantum Limit and beyond“, 5<sup>th</sup> International Conference of Quantum Metrology, Poznan, Poland, 11.05.- 13.05.2016. [Invited Talk]
- [7] T. Siefke, E.-B. Kley, A. Tünnermann, **S. Kroker**, „ Design and fabrication of titanium dioxide wire grid polarizer for the far ultraviolet spectral range“, SPIE Optics and Photonics, San Diego, USA, 25.08.-30.08.2016. [Talk]
- [8] **S. Kroker**, R. Glaser, J. Dickmann, D. Heinert, Y. Levin, R. Nawrodt, S. Vyatchanin, „Electromagnetic Derivation of Thermal Noise in Grating Reflectors“, GWADW, Elba, Italien, 20.05.-25.05.2016. [Poster]