

List of publications

Citation Index (based on Google Scholar, Dec 2018)

# peer reviewed publications	35	Current H-index	25
Total number of citations	> 2000	Average citations per article	~ 60

List of publications in peer reviewed journals

- 35 F.-J. Kahle, C. Saller, **S. Olthof**, C. Li, J. Lebert, S. Weiß, E.M. Herzig, S. Hüttner, K. Meerholz, P. Strohriegl, and A. Köhler: „Does Electron Delocalization Influence Charge Separation at Donor–Acceptor Interfaces in Organic Photovoltaic Cells?“ J. Phys. Chem. C, 122 (2018) 21792.
- 34 T. Meier, T.P. Gujar, A. Schönleber, **S. Olthof**, K. Meerholz, S. van Smaalen, F. Panzer, M. Thelakkat, and A. Köhler: „Impact of excess PbI_2 on the structure and the temperature dependent optical properties of methylammonium lead iodide perovskites“, J. Mater. Chem. C, 4 (2018) 11164.
- 33 Y. Saygili, S. Turren-Cruz, **S. Olthof**, B. Saes, I. Pehlivan, M. Saliba, K. Meerholz, T. Edvinsson, S. Zakeeruddin, M. Grätzel, J.P. Correa Baena, A. Hagfeldt, M. Freitag, and W. Tress: “Planar Perovskite Solar Cells with High Open-Circuit Voltage Containing a Supramolecular Iron Complex as Hole Transport Material Dopant”, ChemPhysChem 19 (2018) 1363.
- 32 H.A. Schwartz, **S. Olthof**, D. Schaniel, K. Meerholz, U. Ruschewitz „Solution-Like Behavior of Photoswitchable Spiropyrans Embedded in Metal–Organic Frameworks”, Inorg. Chem. 56, 31 (2017) 13100.
- 31 T. Hu, T. Becker, N. Pourdavoud, J. Zhao, K. O. Brinkmann, R. Heiderhoff, T. Gahlmann, Z. Huang, **S. Olthof**, K. Meerholz, D. Többens, B. Cheng, Y. Chen, T. Riedl: “Indium-Free Perovskite Solar Cells Enabled by Impermeable Tin-Oxide Electron Extraction Layers”, Adv. Mater. (2017) 1606656.
- 30 **S. Olthof** and K. Meerholz: *Substrate-dependent electronic structure and film formation of $MAPbI_3$ perovskites*, Sci. Rep. 7 (2017) 40267.
- 29 K.O. Brinkmann, J. Zhao, N. Pourdavoud, T. Becker, T. Hu, **S. Olthof**, K. Meerholz, L.Hoffmann, T. Gahlmann, R. Heiderhoff, M.F. Oszajca, N.A. Luechinger, D. Rogalla, Y. Chen, B. Cheng, and T. Riedl: “Suppressed decomposition of organometal halide perovskites by impermeable electron-extraction layers in inverted solar cells”, Nat. Commun. 8 (2017) 13938.
- 28 **S. Olthof**: “Research Update: The electronic structure of hybrid perovskite layers and their energetic alignment in devices”. APL Materials, 4 (2016) 091502.
- 27 J. Emara, T. Schnier, N. Pourdavoud, T. Riedl, K. Meerholz, and **S. Olthof**: “Impact of Film Stoichiometry on the Ionization Energy and Electronic Structure of $CH_3NH_3PbI_3$ Perovskite”. Advanced Materials 28 (2016) 553.

- 26 S. Oez, J. Hebig, E. Jung, T. Singh, A. Lepcha, **S. Olthof**, J. Flohre; Y. Gao, R. German, P.H.M. van Loosdrecht, K. Meerholz, Th. Kirchartz, and S. Mathur: “Zero-dimensional $(\text{CH}_3\text{NH}_3)_3\text{Bi}_2\text{I}_9$ Perovskite for Optoelectronic Applications”. Solar Energy Materials & Solar Cells, Sol. Energy Mater. Sol. Cells 158 (2016) 195.
- 25 A. Lepcha, C. Maccato, A. Mettenboerger, T. Andreu, L. Mayrhofer, M. Walter, **S. Olthof**, T. Ruoko, A. Klein, M. Moseler, K. Meerholz, J. Morante, D. Barreca, and S. Mathur: “Electrospun Black Titania Nanofibres: Influence of Hydrogen Plasma Induced Disorder on the Electronic Structure and Photoelectrochemical Performance”. J. Phys. Chem. C, 119 (2015) 18835.
- 24 C. Poelking, M. Tietze, C. Elschner, **S. Olthof**, D. Hertel, B. Baumeier, F. Würthner, K. Meerholz, K. Leo, and D. Andrienko: “Impact of mesoscale order on open-circuit voltage in organic solar cells”. Nature Materials 14 (2015) 434.
- 23 K. X. Steirer, G. A. MacDonald, **S. Olthof**, J. Gantz, E. L. Ratcliff, A. Kahn, and N. R. Armstrong: “Energy Level Alignment and Morphology of Ag and Au Nanoparticle Recombination Contacts in Tandem Planar Heterojunction Solar Cells”. The Journal of Physical Chemistry C 117 (2013) 22331.
- 22 M. L. Tietze, W. Tress, S. Pfützner, C. Schünemann, L. Burtone, M. Riede, K. Leo, K. Vandewal, **S. Olthof**, P. Schulz, Antoine Kahn. „Correlation of open-circuit voltage and energy levels in zinc-phthalocyanine: C60 bulk heterojunction solar cells with varied mixing ratio.” Physical Review B 88 (2013) 085119.
- 21 B. D. Naab, S. Guo, **S. Olthof**, E. G. B. Evans, P. Wei, G. L. Millhauser, A. Kahn, S. Barlow, S. R. Marder, and Z. Bao: “Mechanistic Study on the Solution-Phase n-Doping of 1,3-Dimethyl-2-aryl-2,3-dihydro-1H-benzimidazole Derivatives”. Journal of the American Chemical Society 135 (2013) 15018.
- 20 G. Ren, C. Schlenker, E. Ahmed, S. Subramanian, **S. Olthof**, A. Kahn, D. Ginger, and S. Jenekhe: „Photoinduced Hole Transfer Becomes Suppressed with Diminished Driving Force in Polymer-Fullerene Solar Cells While Electron Transfer Remains Active”. Adv. Funct. Mat. 23 (2013) 1238.
- 19 **S. Olthof**, S. Singh, S. K. Mohapatra, S. Barlow, S. R. Marder, B. Kippelen, and A. Kahn: “Passivation of trap states in unpurified and purified C₆₀ and the influence on organic field-effect transistor performance”. Applied Physics Letters 101 (2012) 253303.
- 18 **S. Olthof**, S. Mehraeen, S. Mohapatra, S. Barlow, V. Coropceanu, J.-L. Brédas, S. Marder, and A. Kahn: “Ultra low doping in organic semiconductors: evidence of trap filling”. Physical Review Letters 109 (2012) 176601.
- 17 **S. Olthof**, R. Timmreck, M. Riede, and K. Leo: “Photoelectron spectroscopy investigations of recombination contacts for tandem organic solar cells”. Applied Physics Letters, 110 (2012) 113302.
- 16 M. L. Machala, L. Müller-Meskamp, S. Gang, **S. Olthof**, and K. Leo: “On-substrate polymerization of solution-processed, transparent PEDOT:DDQ thin film electrodes with a hydrophobic polymer matrix”. Organic Electronics, 12 (2011) 1518.
- 15 R. Meerheim, **S. Olthof**, M. Hermenau, S. Scholz, A. Petrich, N. Tessler, O. Solomeshch, B. Lussem, M. Riede, and K. Leo: “Investigation of C₆₀F₃₆ as non-volatile p-dopant in organic

- optoelectronic devices*". Journal of Applied Physics, 109 (2011) 103102.
- 14 M. Thomschke, S. Hofmann, **S. Olthof**, M. Anderson, H. Kleemann, M. Schober, B. Lüssem, and K. Leo: "Improvement of voltage and charge balance in inverted top-emitting organic electroluminescent diodes comprising doped transport layers by thermal annealing", Applied Physics Letters, 98 (2011) 083304.
 - 13 C. Falkenberg, **S. Olthof**, R. Rieger, M. Baumgarten, K. Müllen, K. Leo, M. Riede: "The role of energy level matching in organic solar cells - Hexaazatriphenylene hexacarbonitrile as transparent electron transport material". Solar Energy Materials & Solar Cells 95 (2011) 927.
 - 12 **S. Olthof**, J. Meiss, M. K. Riede, B. Lüssem, and K. Leo: "Photoelectron spectroscopy investigation of transparent metal top contacts for organic solar cells". Thin Solid Films 519 (2011) 1872.
 - 11 P. Freitag, S. Reineke, **S. Olthof**, M. Furno, B. Lüssem, and K. Leo: "White top-emitting organic light-emitting diodes with forward directed radiation and high color quality". Organic Electronics, 11 (2010) 1676.
 - 10 Th. C. Rosenow, S. Reineke, **S. Olthof**, M. Furno, B. Lüssem, and K. Leo: "Highly efficient white organic light-emitting diodes based on fluorescent blue emitters", Journal of Applied Physics, 108 (2010) 113113.
 - 9 M. Schober, **S. Olthof**, B. Lüssem, and K. Leo: "Single carrier devices with electrical doped layers for the characterization of charge-carrier transport in organic thin-films", Applied Physics Letters, 97 (2010) 013303.
 - 8 R. Timmreck, **S. Olthof**, M. K. Riede, and K. Leo: "Highly doped layers as efficient electron-hole conversion contacts for tandem organic solar cells", Journal of Applied Physics 108 (2010) 033108.
 - 7 **S. Olthof**, W. Tress, R. Meerheim, B. Lüssem, and K. Leo: "Photoelectron spectroscopy study of systematic varied doping concentrations in an organic semiconductor layer using a molecular p-dopant", Journal of Applied Physics 106 (2009) 103711.
 - 6 **S. Olthof**, R. Meerheim, M. Schober, and K. Leo: "Energy level alignment at the interfaces in a multilayer organic light-emitting diode structure", Physical Review B 79 (2009) 245308.
 - 5 R. Meerheim, S. Scholz, **S. Olthof**, G. Schwartz, S. Reineke, K. Walzer, and K. Leo: "Influence of charge balance and exciton distribution on efficiency and lifetime of phosphorescent organic light-emitting devices", Journal of Applied Physics 104 (2008) 14510.
 - 4 S. Scholz, Q. Huang, M. Thomschke, **S. Olthof**, P. Sebastian, K. Walzer, K. Leo, S. Oswald, C. Corten, and D. Kuckling: "Self-doping and partial oxidation of metal-on-organic interfaces for organic semiconductor devices studied by chemical analysis techniques", Journal of Applied Physics 104 (2008) 104502.
 - 3 C. Falkenberg, C. Uhrich, **S. Olthof**, B. Maennig, M. K. Riede, and K. Leo: "Efficient p-i-n type organic solar cells incorporating 1,4,5,8-naphthalenetetracarboxylic dianhydride as transparent electron transport material", Journal of Applied Physics 104 (2008) 034506.
 - 2 C. Uhrich, D. Wynands, **S. Olthof**, M. Riede, K. Leo, S. Sonntag, B. Maennig, and M. Pfeiffer: "Origin of open circuit voltage in planar and bulk heterojunction organic thin-film photovoltaics depending on doped transport layers", Journal of Applied Physics 104 (2008)

043107.

- 1 K. Fehse, **S. Olthof**, K. Walzer, K. Leo, R. L. Johnson, H. Glowatzki, B. Bröker, and N. Koch: *“Energy level alignment of electrically doped hole transport layers with transparent and conductive indium tin oxide and polymer anodes”*, Journal of Applied Physics 102 (2007) 073719.

List of publications in proceedings journals

- 4 Th. Rosenow, **S. Olthof**, S. Reineke, B. Lüssem, and K Leo: *„Four color stacked white organic light-emitting diodes utilizing the concept of triplet harvesting”*. Materials Research Society Symposium Proceedings 1286 (2011) 1.
- 3 **S. Olthof**, H. Kleemann, B. Lüssem, and K. Leo: *“Built-in potential of a pentacene pin homojunction studied by ultraviolet photoemission spectroscopy”* Mater. Res. Soc. Symp. Proc., 1270 (2010), 1270-II09-49.
- 2 S. Pfuetzner, J. Meiss, **S. Olthof**, M. P. Hein, A. Petrich, K. Leo, and M. Riede: *„Improved photon harvesting by employing C₇₀ in bulk heterojunction solar cells”*, Proceeding of SPIE 7725 (2010) 77250E.
- 1 R. Meerheim, S. Scholz, G. Schwartz, S. Reineke, **S. Olthof**, K. Walzer, and K. Leo: *“Efficiency and lifetime enhancement of phosphorescent organic Devices”*, Proceedings of SPIE (2008) 699917.

List of patents

- 2 B. Friebe, M. Hermenau, M. Hummert, R. Meerheim, S. Olthof, A. Petrich, S. Scholz *Verfahren zur Herstellung von Fulleren-Derivaten*
Patent no. DE102010046040 A1 (2012)
- 1 C. Falkenberg, M. Hermenau, M. Hummert, K. Leo, S. Olthof, M. Riede *Organische Solarzelle*
Patent no. DE102011013897 A1 (2012)

List of Presentations

Invited talks at international conferences are marked in bold

- 2019 52 Upcoming invited talk at NanoGe Meeting in Berlin, Germany
 51 Upcoming invited Price Talk (Gaede Preis) at the DPG Spring Meeting in Regensburg, Germany
- 2018 50 **Invited talk, nanoGe Fall Meeting 18, Malaga/Spain. "Unravelling the electronic structure of hybrid perovskites and their interfaces"**
 49 **Invited Talk PSCO conference Lausanne/Switzerland, "Probing the electronic structure of hybrid perovskites and the impact of interfaces"**
 48 **Invited talk, EMRS Fall 2018, Warsaw/Poland. "Probing the electronic structure of hybrid perovskites and the impact of interfaces"**
 47 Invited Talk University Wuppertal, Germany, "Photoelectron Spectroscopy: a powerful tool to probe novel semiconducting materials"
 46 Invited Talk at 4th Dutch Perovskite Workshop, Eindhoven/Netherlands, "Exploring the electronic structure of hybrid perovskites"
 45 Invited talk, Physikalisches Kolloquium, Technical University Dresden /Germany „Characterizing the electronic structure of novel hybrid perovskites“
 44 Invited talk, SEPOMO workshop, Dresden/Germany, "Characterization via Photoelectron spectroscopy"
 43 Invited talk, University of Jena, Germany, "Interfaces in organic semiconductors"
 42 Poster, MRS Spring, Phoenix/USA "Probing the occupied and unoccupied density of states of hybrid perovskites"
 41 **Invited talk, SEPV2018, Barcelona/Spain "Metal oxide layers in perovskite solar cells: a double-edged sword"**
- 2017 40 **Invited talk, ESPI9 conference, Singapore "Probing the electronic structure of hybrid perovskites and their bottom contact interface formation"**
 39 Invited talk University Potsdam "Probing the electronic structure of hybrid perovskites and their bottom contact interface formation"
 38 **Invited talk, ABXPV Conference Valencia/Spain "What can we learn about perovskites from UHV surface science"**
 37 **Invited talk, DPG Spring Meeting, Dresden/Germany "Investigation of hybrid organic/inorganic perovskite systems and interfaces by photoelectron spectroscopy"**
 36 Invited talk University of Heidelberg/Germany (Lieseberg Kolloquium)

- “Characterization of the electronic structure in novel semiconducting materials”*
- Invited talk, Oxford University/England *“Electronic structure investigations of organic and hybrid semiconductors”*
- 2016 35
34 Invited talk, Universite de Lausanne/Switzerland *“Photoelectron spectroscopy studies on hybrid organic/inorganic perovskite systems”*
- 33 Talk MRS Boston *“New insights into the interface formation of hybrid perovskites with organic and metal oxide bottom contacts”*
- 32 Talk HOPV conference Swansea/Wales *“Interface chemistry and energetic alignment at the MAPbI₃ bottom contact”*
- 31 Invited talk, University of Bayreuth/Germany: *“Photoelectron spectroscopy studies on hybrid organic/inorganic perovskite systems”*.
- 30 Invited tutorial talk, DPG Regensburg/Germany *“The electronic structure in hybrid perovskite layers and devices”*.**
- 29 Talk, DPG Regensburg/Germany *“Substrate-dependent electronic structure and film formation of MAPbI₃ perovskites”*
- 2015 **28 Invited talk, MRS Boston/USA *“Doping organic semiconductors – status, challenges, and possibilities”***
- 27 Invited talk, Philips Research facility Aachen/Germany *“Organic semiconductor devices”*
- 26 Invited talk, Seminar of the Studienkolleg der Deutschen Studienstiftung, *“Organic semiconductor devices: Investigations of interfaces and the application of doping”*
- 25 Invited Poster, Humboldt Frontiers meeting Agra/India. *“Investigation of Organometal Lead Halide Perovskites for Solar Cell Applications”*
- 24 Invited talk, ICSM, Turku/Finland. *“Characterization and passivation of trap states in organic semiconductors”***
- 2014 **23 Invited tutorial talk, ESREF conference in Berlin/Germany. *“Organic semiconductors: Novel materials for optoelectronic application”***
- 22 Talk, MRS Fall, Boston/USA. *“Trap states and band bending effects - New insights into organometal perovskite films and interfaces”*
- 21 Invited talk, WEH Seminar 578, Bad Honnef/Germany. *“Doping organic semiconductors – principles and applications”*
- 20 Invited Talk, Jena University, Jena/Germany, *“Trap passivation in organic semiconductors by ultra low molecular doping and the application in organic field effect transistors”*
- 2013 19 Invited talk, DFG Spring School - Elementarprozesse der Organischen Photovoltaik, Weinböla/Germany. *„Interface Processes“*
- 18 Talk, JMRS Kyoto/Japan. *“Trap passivation in organic semiconductors by ultra low molecular doping and the application in organic field effect transistors devices”*

- 17 Talk, DPG Regensburg/Germany. *“Direct Observation of Trap Filling in an Organic Semiconductor Employing Ultra Low Molecular Doping”*
- 2012 16 Invited talk, University of Cologne/Germany. *“Passivation of trap states in an organic semiconductor employing ultra low molecular doping”*
- 15 Talk, ICSM, Atlanta/USA. *“Direct observation of trap filling in an organic semiconductor employing ultra low molecular doping”*
- 2011 14 **Invited talk, MRS Fall Boston/USA, Tutorial on Organic Photovoltaics: Current Challenges and Opportunities. “Interfaces in Organic Semiconductors”**
- 13 Poster, MRS Fall Boston/USA. *“Strong air stable n-dopants investigated by Photoelectron Spectroscopy and Scanning Tunneling Spectroscopy”*
- 12 Invited talk, University of Arizona/USA. *“Photoelectron Spectroscopy on Doped Organic Semiconductors and Related Interfaces”*
- 11 Poster, F-Pi-10, Beijing/China *“Investigation of strong air stable n-dopants for applications in organic optoelectronic devices”*
- 10 Talk, MRS Spring, San Francisco/USA, *“Energetic alignment of recombination contacts for tandem organic solar cells investigated by photoelectron spectroscopy”*
- 2010 9 Talk, MRS Spring, San Francisco/USA. *“Energetic alignment of recombination contacts for tandem organic solar cells investigated by photoelectron spectroscopy”*
- 8 Invited talk, Princeton University/USA. *“Investigation of doped organic semiconductor layers and their application in p-n and p-i-n type devices using photoelectron spectroscopy”*
- 2009 7 Poster DPG, Dresden/Germany: *“Investigation of the effects of doping concentration in a p-doped organic semiconductor”*
- 6 Poster, 427. WE Heraeus Seminar, Bad Honnef/Germany. *“p-doping organic semiconductors: a study of varying doping concentrations”*
- 2008 5 Talk, ICEL7, Dresden/Germany. *“Measuring the energy level alignment at all interfaces in a complete OLED”*
- 4 Talk, DPG, Berlin/Germany. *“Measuring the energy level alignment at all interfaces in a complete OLED”*
- 3 Poster, MRS, Boston/USA: *“Experimental determination of energy level alignment at all interfaces in a complete OLED structure”*
- 2 Poster, OLLA summer school, Krutyn/Poland: *“Photoelectron spectroscopy of organic semiconductor interfaces”*
- 2006 1 Poster, DPG, Dresden /Germany: *“Low Temperature scanning tunneling microscopy on semiconductor samples grown by molecular beam epitaxy”*