

Publications list 1988 – 2022, Dr. Erwin Hack

Peer Reviewed Journals (SCI, SCIE)

- 2022 D. Zwyssig, E. Hack, P. Zolliker, E. Mavrona, *3D printed microfluidic devices using TOPAS filament for THz spectroscopic measurements*, submitted to Opt Mat Exp
- E. Mavrona, Y. Hu, G. De Freitas Siquera, M. Rüggeberg, S. Popov, L. A. Berglund, E. Hack, G. Nyström, P. Zolliker, *Efficiency Assessment of Wood and Cellulose-Based Optical Elements for Terahertz Waves*, submitted to Opt Mat Exp
- K.M. Dettlaff, E. Mavrona, P. Zolliker, E. Hack, *Measurement of Orbital Angular Momentum in the near-field of a fork grating*, submitted to Communications Physics
- E. A. Patterson and E. Hack, *Validating out of the box: identifying a campaign of physical tests*, Journal of Strain Analysis for Engineering Design, accepted
- E. Hack, L. Luan, L. Crosbie, S. Michel, *A Digital Image Correlation (DIC) prototype system for crack propagation monitoring in aircraft assemblies*, [version 2; awaiting peer review]. Open Res Europe **2**(2022)82 (doi.org/10.12688/openreseurope.14599.1)
- K.M. Dettlaff, E. Mavrona, P. Zolliker, E. Hack, *Retrieving the Talbot length of arbitrary 2D gratings*, Opt Lett **47**(2022)1814-1817
- E. A. Patterson, I. Diamantakos, K. Dvurecenska, R. J. Greene, E. Hack, G. Lampeas, M. Lomnitz and T. Siebert, *Validation of a structural model of an aircraft cockpit panel: an industrial case study*, Journal of Strain Analysis for Engineering Design, **57**(2022)714-723, doi.org/10.1177/03093247211059084
- G. Lampeas, I. Diamantakos, K. Dvurecenska, E. Hack, E.A. Patterson, T. Siebert, *Quantitative model validation using experimental data for an imperfect fuselage panel subject to compression*, submitted to Simulation Modelling Practice and Theory
- 2021 E. Hack, *Working with Pramod: A quarter century journey*, Asian J Phys **30** (2021) 1409-1420
- G. C. Fish, J. M. Moreno-Naranjo, A. Billion, D. Kratzert, E. Hack, I. Krossing, F. Nüesch and J. E. Moser, *The Critical Role of H-Aggregation in High-Efficiency Photoinduced Charge Generation in Pristine Pentamethine Cyanine Salts*, Phys Chem Chem Phys **23** (2021) 23886-23895
- E. Mavrona, J. Graf, E. Hack, P. Zolliker, *Optimized 3D printing of THz waveguides with cyclic olefin copolymer*, Optical Materials Express **11** (2021) 2495-2504
- P. Zolliker, M. Shalaby, E. Söllinger, E. Mavrona, E. Hack, *Real-time high resolution THz imaging with a Fiber coupled Photo Conductive Antenna and an uncooled Microbolometer Camera*, Sensors **21** (2021) 3757-3770, 10.3390/s21113757
- Z. Zeng, E. Mavrona, D. Sacré, N. Kummer, J. Cao, L. Müller, E. Hack, P. Zolliker, and G. Nyström, *Terahertz Birefringent Biomimetic Aerogels based on Cellulose Nanofibers and Conductive Nanomaterials*, ACS Nano **15** (2021) 7451–7462, 10.1021/acsnano.1c00856
- T. Siebert, E. Hack, G. Lampeas, E.A. Patterson, K. Splithoff, *Uncertainty Quantification for DIC Measurements in Industrial Environments*, Experimental Techniques **45** (2021) 685–694, doi.org/10.1007/s40799-021-00447-3

- K. Dvurecenska, I. Diamantakos, E. Hack, G. Lampeas, E.A. Patterson, T. Siebert, *The validation of a full-field deformation analysis of an aircraft panel – a case study*, Journal of Strain Analysis for Engineering Design **56** (2021) 265–272, [10.1177/0309324720971140](https://doi.org/10.1177/0309324720971140)
- 2020 E. Hack, *Editorial*, Opt. Las. Eng. **127** (2020) 105975
- A. Verma, D. Martineau, E. Hack, M. Makha, E. Turner, F. Nüesch and J. Heier, *Towards industrialization of perovskite solar cells using slot die coating*, J. Mater. Chem. C **8** (2020) 6124–6135, DOI: [10.1039/d0tc00327a](https://doi.org/10.1039/d0tc00327a)
- M. González-Castaño, C. Cancellieri, X. Maeder, E. Hack, P. Schmutz, *Enhancing the barrier properties of anodic Al₂O₃ on pure Aluminum*, Applied Surface Science **505** (2020) 144522, <https://doi.org/10.1016/j.apsusc.2019.144522>
- 2019 S.B. Anantharaman, K. Strassel, M. Diethelm, Á. Gubicza, E. Hack, R. Hany, F.A. Nüesch, and J. Heier, *Exploiting Supramolecular Assemblies for Filterless Ultra-Narrowband Organic Photodetectors with Inkjet Fabrication Capability*, J. Mat. Chem. C **7** (2019) 14639 <https://doi.org/10.1039/C9TC04773E>
- L. Valzania, Y. Zhao, L. Rong, D. Wang, M. Georges, E. Hack, P. Zolliker, *THz coherent lensless imaging techniques – a review*, Applied Optics, OSA Digital Holography and 3-D Imaging 2019 Feature Issue, Appl. Opt. **58** (2019) G256–G275 ¹
- L. Valzania, P. Zolliker, E. Hack, *Coherent reconstruction of a textile and a hidden object with terahertz radiation*, Optica **6**(2019) 518–523
- D. Gesevičius, A. Neels, L. Duchêne, E. Hack, J. Heier and F. Nüesch, *Physical Vapor Deposition of Cyanine Salt and First Application in Organic Electronic Devices*, Journal of Materials Chemistry C **7** (2019) 414–423
- 2018 D. Gesevičius, A. Neels, S. Yakunin, E. Hack, M.V. Kovalenko, F. Nüesch and J. Heier, *Superweak Coordinating Anion as Superstrong Enhancer of Cyanine Organic Semiconductor Properties*, ChemPhysChem **19** (2018) 3356–3363, DOI: [10.1002/cphc.201800863](https://doi.org/10.1002/cphc.201800863)
- K. Strassel, A. Kaiser, M. Diethelm, S. Jenatsch, A. Véron, S. Anantharaman, E. Hack, F. Nüesch, R. Aderne, C. Legnani, M. Cremona, R. Hany, *Squaraine Dye for Visibly Transparent All-Organic Optical Upconversion Device with Sensitivity at 1000 nm*, ACS Appl Mater Interfaces **10**:13(2018)11063–11069, DOI: [10.1021/acsami.8b00047](https://doi.org/10.1021/acsami.8b00047)
- L. Valzania, T. Feurer, P. Zolliker, E. Hack, *Terahertz ptychography*, Opt. Lett. **43** (2018) 543–546 ²
- R. Steiger, G. Fink, S. Nerbano, E. Hack, K. Beyer, *Experimental investigation of friction stresses between adjacent panels made of Oriented Strand Board (OSB) and between OSB panels and glued laminated timber (GLT) frame members*, Materials and Structures **51**:2(2018) <http://rdcu.be/C9wu>
- D. Gesevičius, A. Neels, S. Jenatsch, E. Hack, S. Athanasopoulos, L. Vianic, F. Nüesch and J. Heier, *Increasing Photovoltaic Performance of an Organic Cationic Chromophore by Anion Exchange*, Advanced Science **5** (2018)1700496

¹ High-lighted as an Editor's Pick on 2 Dec 2019

² High-lighted in OSA „Spotlight on optic“ in February 2018. Only two papers are highlighted from OSA respective journals each month.

- 2017 P. Zolliker, M. Rüggeberg, L. Valzania and E. Hack, *Extracting Wood Properties from Structured THz Spectra: Birefringence and Water Content*, IEEE Trans THz Science and Technol **7**(2017)722-731
- S. Jenatsch, Lei Wang, N. Leclaire, E. Hack, R. Steim, S. B. Anantharaman, J. Heier, B. Ruhstaller, L. Penninck, F. Nüesch, R. Hany, *Visible light-emitting host-guest electrochemical cells using cyanine dyes*, Organic Electronics **48**(2017)77-84
- L. Valzania, P. Zolliker, E. Hack, *Topography of hidden objects using THz digital holography with multi-beam interferences*, Optics Express **25** (2017) 11038-11047
- N. Leclaire, F. Boudoire, E. Hack, R.Brönnimann, F. A. Nüesch, J. Heier, *Light Scattering Enhancement at the Absorption Edge in Dewetting Droplets of Cyanine Dyes*, Advanced Optical Materials **5** (2017) 1600903 ³
- F. Evangelisti, M. Stiefel, O. Guseva, R. Partovi Nia, R. Hauert, E. Hack, L.P.H. Jeurgens, F. Ambrosio, A. Pasquarello, P. Schmutz, C. Cancellieri, *Electronic and structural characterization of barrier-type amorphous aluminium oxide*, Electrochimica Acta **224** (2017) 503–516, <http://dx.doi.org/10.1016/j.electacta.2016.12.090>
- 2016 E. Hack, L. Valzania, G. Gäumann, M. Shalaby, C.P. Hauri and P. Zolliker, *Comparison of thermal detector arrays for off-axis THz holography and real-time THz imaging*, Sensors **16** (2016) 221-232; doi:10.3390/s16020221
- E. Hack, G. Lampeas, E. Patterson, *An evaluation of a protocol for the validation of computational solid mechanics models*, J. Strain Analysis for Engineering Design, **51** (2016) 5-13
- E. Hack, *An inter-laboratory study of the calibration of optical full-field systems for measuring deformation*, J. Strain Analysis for Engineering Design **51** (2016) 90-98
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- 2015 E. Hack, X. Lin, E. A. Patterson, and C. M. Sebastian, *A reference material for establishing uncertainties in fullfield displacement measurements*, Meas. Sci. Technol. **26** (2015) 075004(13pp)
- E. Hack, R. K. Fruehmann, R. Roos, M. Feligiotti, P. Schuetz, J. P. Tyler and J. M. Dulieu-Barton, *Flaw and damage assessment in torsionally loaded CFRP cylinders using experimental and numerical methods*, Comp.Struct.**132**(2015)109–121
- P. Zolliker and E. Hack, *THz Holography in reflection using a high resolution microbolometer array*, Optics Express **23** (2015) 10957–10967
- R. Longtin, I. Shorubalko, R. Furrer, J. R. Sanchez-Valencia, E. Hack, H. R. Elsener, O. Gröning, P. Greenwood, N. Rupesinghe, K. Teo, P. Gröning, C. Leinenbach, *Active vacuum brazing of CNT films to metal substrates for superior electron field emission performance*, Sci. Technol. Adv. Mater. **16** (2015) 015005
- 2014 E. Hack and P. Zolliker, *Terahertz holography for imaging amplitude and phase objects*, Optics Express **22** (2014) 16079–16086

³ High-lighted on AdvancedScienceNews.com

- 2013 R. Mooser, F. Forsberg, E. Hack, G. Székely, and U. Sennhauser, *Estimation of affine transformations directly from tomographic projections in two and three dimensions*, Machine Vision and Applications **24** (2013) 419-434
- C. Sebastian, E. Hack, E.A. Patterson, *An approach to the validation of computational solid mechanics models for strain analysis*, J. Strain Analysis for Engineering Design **48** (2013) 36-47 ⁴
- E.A. Patterson, M. Feligiotti, E. Hack, *On the Integration of Validation, Quality Assurance and Non-Destructive Evaluation*, J. Strain Analysis for Engineering Design **48** (2013) 48-58
- 2012 E. Hack, *Measurement uncertainty of Carré-type phase-stepping algorithms*, Opt. Las. Eng. **50** (2012) 1023–1025
- F. Winnefeld, J. Kaufmann, E. Hack, S. Harzer, A. Wetzel, R. Zurbriggen, *Moisture induced length changes of tile adhesive mortars and their impact on adhesion strength*, Construction and Building Materials **30** (2012) 426–438
- 2011 R. Longtin, E. Hack, J. Neuenschwander, J. Janczak-Rusch, *Benign Joining of Ultrafine Grained Aerospace Aluminum Alloys using Nanotechnology*, Adv. Materials **23** (2011) 5812–5816
- D. Iwaniuk, P.K. Rastogi, E. Hack, *Correcting spherical aberrations induced by an unknown medium through determination of its refractive index and thickness*, Opt. Exp. **19** (2011) 19407–19414
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- F. Forsberg, M. Sjö Dahl, R. Mooser, E. Hack and P. Wyss, *Full 3D strain measurements on wood exposed to three-point-bending: Analysis by use of digital volume correlation applied to synchrotron radiation μ CT image data*, Strain **46** (2010) 47–60 ⁵
- 2009 P. Wyss, E. Hack, P. Holtappels, *Application of Non-Destructive Testing to Analyse SOFC Cells and Stacks*, Fuel Cells **09**(2009) No. 6, 907–910
- 2008 F. Forsberg, R. Mooser, M. Arnold, E. Hack and P. Wyss, *3D micro-scale deformations of wood in bending: Synchrotron radiation μ CT data analyzed with digital volume correlation*, J. Structural Biology **164** (2008) 255–262
- M. Whelan, D. Albrecht, E. Hack, and E.A. Patterson, *Calibration of a speckle interferometry full-field strain measurement system*, Strain **44** (2008) 180–190
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- E. Hack, A. Schumacher, *ESPI-measurements of strain on a CFRP-reinforced bending beam*, Strain **43** (2007) 235-239

⁴ Among the top five most downloaded papers of J. Strain Analysis in 2013

⁵ Among the top ten most cited papers published in Strain 2010/2011

- E.A. Patterson, P. Brailly, R.L. Burguete, E. Hack, T. Siebert and M. Whelan, *A challenge for high performance full-field strain measurement systems*, *Strain* **43** (2007) 167–180
- E. Hack, A. Schumacher, *DSPI strain measurement on an externally reinforced bending beam: a comparison of step-by-step addition and pixel shift correlation*, *Opt. Las. Eng.* **45** (2007) 589-595
- E. Patterson, E. Hack, P. Brailly, R. Burguete, Q. Salem, T. Siebert, R. Tomlinson, M. Whelan, *Calibration and evaluation of optical systems for full-field strain measurement*, *Opt. Las. Eng.* **45** (2007) 550–564
- 2005 P.N. Gundu, E. Hack, and P.K. Rastogi, *Superspeckles: a new application of optical superresolution*, *Optics Express* **13** (2005) 6468-6475
- E. Hack, P. N. Gundu, and P. K. Rastogi, *Adaptive correction to the speckle correlation fringes using twisted nematic LCD*, *Appl. Opt.* **44** (2005) 2772-2781
- P. N. Gundu, E. Hack, and P.K. Rastogi, *High efficient superresolution combination filter with twin LCD spatial light modulators*, *Opt. Express* **13** (2005) 2835-2842
- P. N. Gundu, E. Hack, and P. K. Rastogi, *'Apodized Superresolution'- Concept and simulations*, *Opt. Commun.* **249** (2005)1-3, 101-107
- E. Hack, *Guest Editorial: Optics in Switzerland: development of lasers, optical devices and production technology*, *Opt. Las. Eng.* **43** (2005)3-5, 247–249
- E. Hack, *Guest Editorial: Optics in Switzerland: measurement procedures and applications*, *Opt. Las. Eng.* **43** (2005)3-5, 415–418
- E. Hack, D. Leroy, *Camera based monitoring of the rigid body displacement of a mandrel in superconducting cable production*, *Opt. Las. Eng.* **43** (2005)3-5, 455–474
- W. Fasnacht, E. Hack, V. Jauch, D. Rechenmacher, M. Senn, P. Vontobel, *Vier Öfen, zwölf Düsen - Archäometallurgie und dreidimensionale Erfassung römischer Schmiedeöfen*, *Archäologie der Schweiz*, **28** (2005) 20-27
- 2004 P. Dias-Lalcaca, E. Hack, F. Visintainer, St. Bernard, and U. Sennhauser, *A laser-based instrument for measuring strain in electronic packages using coherent fibre-bundles*, *Microelectronics Reliability* **44** (2004) 1693-1697
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- E. Hack, *Kombinierter Einsatz von Scherografie und Thermografie zur Charakterisierung thermo-mechanischer Beanspruchung*, *tm* **69** (2002) 5, 213-216
- 2000 E. Hack *ESPI – Principles and Prospects*, in: *Trends in Optical Non-destructive Testing and Inspection*, eds.: P. Rastogi, D. Inaudi, Elsevier, Amsterdam, 2000, 207-222
- 1999 R. Kästle, E. Hack, and U. Sennhauser *Multiwavelength shearography for quantitative measurements of two-dimensional strain distributions*, *Appl. Opt.* **38** (1999)1,96–100
- E. Hack, R. Brönnimann *ESPI deformation measurement on lightweight structures under thermal load* *Opt. Las. Eng.* **31** (1999), 213–222

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- E.M. Moser, R. Urech, E. Hack, H. Künzli, and E. Müller *Hydrocarbon films inhibit oxygen permeation through plastic packaging material*, Thin Solid Films **317** (1998), 388–392
- 1995 P. Tatasciore and E. Hack *Projection Moiré: Using Tensor Calculus for General Geometries of Optical Setups*, Opt. Eng. **34** (1995)7, 1887–99
- 1991 E. Hack and J.R. Huber, *Quantum Beat Spectroscopy of Molecules*, Int. Rev. Phys. Chem. **10** (1991)287–317
- E. Hack, H. Bitto and J.R. Huber *Stark quantum beat spectroscopy of polyatomic molecules*, Z. Phys. D **18** (1991) 33–44

Books and Book Chapters

- 2016 E. Hack and P. K. Rastogi, Eds.: Proceedings of the International Conference on Processes in Combined Digital Optical and Imaging Methods applied to Mechanical Engineering, Ascona, Switzerland, 8–13 May 2016
- 2015 A.J. Brunner, E. Hack, J. Neuenschwander, *Nondestructive Testing of Polymers and Polymer-Matrix Composites*, in: Encyclopedia of Polymer Science and Technology, John Wiley, Hoboken N.J. USA, 2015, doi: 10.1002/0471440264.pst216.pub2
- 2014 P.K. Rastogi, E. Hack, Eds.: Phase estimation in optical interferometry, CRC Press, November 2014, ISBN 9781466598317
- E. Hack, *Uncertainty in phase measurements*, in: P.K. Rastogi, E. Hack, Eds.: Phase estimation in optical interferometry, CRC Press, November 2014, ISBN 9781466598317
- 2012 P.K. Rastogi, E. Hack, Eds.: Optical Methods for Solid Mechanics: A Full-Field Approach, Wiley, Berlin, July 2012, ISBN: 978-3-527-41111-5
- 2010 P.K. Rastogi, E. Hack, Eds.: International Conference on Advanced Phase Measurement Methods in Optics and Imaging, Monte Verita (Ascona), 16–21 May 2010, AIP Conference Proceedings Volume **1236**, ISBN: 978-0-7354-0783-1
- 2008 A.J. Brunner, E. Hack, J. Neuenschwander, *Nondestructive Testing*, in: Characterization and Analysis of Polymers, John Wiley, Hoboken N.J. USA, 2008, ISBN: 978-0-470-23300-9
- 2007 A.J. Brunner, E. Hack, J. Neuenschwander, *Nondestructive Testing*, in: Encyclopedia of Polymer Science and Technology, Concise 3rd Edition, H.F. Mark (ed.), John Wiley, Hoboken N.J. USA, 2007, ISBN: 978-0-470-04610-4, pp 747-751
- 2000 E. Hack, *ESPI – Principles and prospects*, in P.K. Rastogi, D. Inaudi, Eds., “Trends in Optical Nondestructive Testing and Inspection”, Elsevier, Amsterdam, 2000, ISBN 978-0-08-043020-1

Conference Contributions ⁶

- 2022 D. Zwysig, M. De Maeyer, C. Sommer, K. Dettlaff, E. Hack, P. Zolliker and E. Mavrona, *Using 3D printing and microfabrication techniques of TOPAS for THz lenses to detectors*, 47th IRMMW-THz 2022 Conference, Delft, The Netherlands, 28 Aug – 2 Sep 2022, *accepted*
- E. Mavrona, Y. Hu, S. Saitzek, J.-F. Blach, E. Hack, G. Nyström, and P. Zolliker, *Ag-doped cellulose nanofibers for THz wave plates*, 47th IRMMW-THz 2022 Conference, Delft, The Netherlands, 28 Aug – 2 Sep 2022, *accepted*
- K.M. Dettlaff, E. Mavrona, P. Zolliker and E. Hack, *Near-field Diffraction From Quasi-periodic Structures In The THz Regime*, 47th IRMMW-THz 2022 Conference, Delft, The Netherlands, 28 Aug – 2 Sep 2022, *accepted*
- 2021 E. Mavrona, Z. Zeng, D. Sacré, J. Cao, E. Hack, G. Nyström, & P. Zolliker, *Cellulose nanofibers doped with conductive nanomaterials for THz applications*, IRMMW-THz 2021, Chengdu, China, Aug 29 – Sep 03, 2021, p. 5103942 (2 pp.) (virtual)
- E. Mavrona, J. Graf, D. Zwysig, E. Hack, P. Zolliker, *High-quality 3D printed THz waveguides with optimized processing parameters for COC filaments*, CLEO: Conference on Lasers and Electro-Optics, CLEO/Europe-EQEC 2021, Munich, 20 – 24 June 2021
- C.A. Middleton, P.R. Lambert, R.J. Greene, A. Kupferschmid, E. Hack, S. Michel, L. Harris, T. Siebert, E.A. Patterson, *Using COTS technology for Structural Health Monitoring in airframes during large-scale testing*, Proceedings of the ETTC 2021– European Test & Telemetry Conference, Toulouse (online), 15-16 June 2021, 73-76
- A.J. Brunner, E. Hack, E. Patterson, R.J. Greene, L. Crosbie, *Komplementäre Schall-emissionsüberwachung quasi-statischer Belastungsversuche an einem A320 Flugzeug-flügel im Rahmen des Horizon 2020 EU-Projekts "Development of Integrated MEasurement Systems (DIMES)"*, Schall21, Weimar (online), 24–25 February 2021, *DGZfP-Berichtsband 175*
- 2020 E. Mavrona, J. Graf, E. Hack and P. Zolliker, *Towards high quality 3D printed THz devices with cyclic olefin polymer*, IRMMW-THz 2020, Buffalo (NY), USA, 8–13 Nov 2020 (virtual)
- P. Zolliker, E. Mavrona, E. Hack, M. Rüggeberg, Zhihui Zeng, G. Siqueira, G. Nyström, *Wood – Base material for Optical Elements for Terahertz Waves?*, IRMMW-THz 2020, Buffalo (NY), USA, 8–13 Nov 2020 (virtual)
- L. Luan, L. Crosbie, R. Greene, E. Hack, P. Lambert, S. Michel, C. Middleton and E. Patterson, *A prototype of a DIC System for potential Structural Health Monitoring (SHM) applications*, iDICs, Nantes (virtual), 19-22 Oct 2020
- P. Lambert, R. Furrer, E. Hack, E. Patterson, *Low-cost Lock In Thermoelastic Stress Analysis*, iDICs, Nantes (virtual), 19-22 Oct 2020 ⁷
- E.A. Patterson, I. Diamantakos, K. Dvurecenska, R.J. Greene, E. Hack, G. Lampeas, M. Lomnitz and T. Siebert, *Application of a model validation protocol to an aircraft cockpit panel*, BSSM's 15th Int. Conf. on Advances in Experimental Mechanics, Oxford, UK, 8-10 Sep 2020 (*postponed to 2021*)

⁶ Peer-reviewed conference contributions. Presenting Author underlined

⁷ Originally submitted and accepted for the 19th International Conference on Experimental Mechanics, Kraków, Poland, 5-9 July 2020, but withdrawn as the conference was *postponed to 2021*

- 2019 E. Hack, K. Dvurecenska, E.A. Patterson, G. Lampeas, T. Siebert, E. Szigeti, *Validation Procedure for Industrial Environments (keynote)*⁸, MBL meets OPTIMESS, Antwerp, BE, 18-20 Sep 2019
- E. Hack, K. Dvurecenska, G. Lampeas, E.A. Patterson, T. Siebert, E. Szigeti, *Incorporating historical data in a validation process*, BSSM's 14th Int. Conf. on Advances in Experimental Mechanics, Belfast, UK, 10-12 Sep 2019
- G. Lampeas, E.A. Patterson, E. Hack, *Round robin results for CWA16799:2014 – Validation of computational solid mechanics models*, BSSM's 14th Int. Conf. on Advances in Experimental Mechanics, Belfast, UK, 10-12 Sep 2019
- G. Lampeas, I. Diamantakos, T. Siebert, E. Hack, E. Patterson, *Uncertainty quantification of Digital Image Correlation measurements based on projected speckle patterns* EASN 2019 Conference, Athens, Greece, 04–06 Sep 2019
- Kang, B. J.; Gäumann, G.; Numan, N.; Ollmann, Z.; Waeber, Y.; Bagiante, S.; Valzania, L.; Zolliker, P.; Émond, N.; Chaker, M.; et al. *THz-induced insulator-to-metal transition in stacked VO₂ nano-slits*. In Proceedings of the 44th international conference on infrared, millimeter and terahertz waves IRMMW-THz 2019, Paris, France, 1-6 Sep, 2019; IEEE: Danvers, MA, 2019; p (2 pp.). <https://doi.org/10.1109/IRMMW-THz.2019.8873912>
- A. Alexiadis, R.L. Burguete, K. Dvurecenska, E. Hack, G. Lampeas, E.A. Patterson, T. Siebert and E. Szigeti, *A Novel Flow-chart for Model Validation: Is it Conceivable to Validate without New Measurements?*, SEM Annual Conference, Reno, USA, 03–06 June 2019
- L. Valzania, P. Zolliker and E. Hack, *Coherent terahertz imaging of a textile and a hidden object*, Proc. OSA Digital Holography & 3-D Imaging Topical Meeting, Bordeaux, France, 19–23 May 2019, Th4B.2
- 2018 E. Hack, K. Dvurecenska, G. Lampeas, E. Patterson, T. Siebert, E. Szigeti, *Steps towards industrial validation experiments*, ICEM 2018, 01-05 July 2018, Brussels, Belgium, Proceedings 2 (2018) 391; doi:10.3390/ICEM18-05216
- L. Valzania, E. Hack, P. Zolliker, R. Brönnimann and T. Feurer, *Resolution limits of terahertz ptychography*, SPIE Photonics Europe 2018, Strasbourg, France, 22–26 April, Proc. SPIE 10677, *Unconventional Optical Imaging*, 1067720; doi:10.1117/12.2307157⁹
- E. Hack, L. Valzania, P. Zolliker and T. Feurer, *THz ptychography and digital holography: a comparison*, Photomechanics 2018, Toulouse, FR, 19–22 March 2018, Book of Abstracts pp.65-67
- 2017 E. Hack, L. Valzania and P. Zolliker, *Topography of hidden objects revealed using THz digital holography*, 12th Int Conf on Advances in Exp Mech, Sheffield, UK, 29–31 Aug 2017
- L. Valzania, P. Zolliker and E. Hack, *Towards the assessment of biomechanical interfaces: Topography of hidden objects obtained with THz holography*, IRMMW-THz 2017 42nd Int. Conf. on Infrared, Millimeter and Terahertz Waves, Cancun, Mexico, 27 Aug – 1 Sep 2017

⁸ Keynote lecture

⁹ Won the „Best student paper award“. <https://www.spiedigitallibrary.org/conference-proceedings-of-spie/10677/1067720/Resolution-limits-of-terahertz-ptychography/10.1117/12.2307157.full?SSO=1>

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- 2021 E. Hack, *System trials on test bench developed around A320 metallic wing box*, Fourth Workshop on [almost] Virtual Testing of Structures, Airbus, Filton, 24 September 2021

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- 2013 E. Hack, *Introduction to calibration procedures for full-field strain measurements*, CEN-WS71 Kick Off Meeting, Brussels, 11-13 June 2013
- 2012 E. Hack, *Goal Line Technology*, 74. Sitzung „Zuverlässigkeits-Pool“, EMPA, Dübendorf, 09. November 2012
- E. Hack, M. Camenzind, *Goal Line Technology*, IFAB-Meeting, Zurich, 05 July 2012
- E. Hack, *Ellipsometrie und Anwendungen auf Photovoltaik*, 73. Sitzung „Zuverlässigkeits-Pool“, EMPA, Dübendorf, 23. März 2012
- E. Hack, *Goal Line Technology*, 126th IFAB-Meeting, Bagshot, Surrey (UK), 03 March 2012
- 2011 E. Hack, *Digital Image Correlation*, lecture at EPFL, Doctoral School, 08 November 2011
- E. Hack, *Messunsicherheit, 6-sigma, Worst Case*, ganztägige Schulung beim „Zuverlässigkeits-Pool“ Partner Diehl Aerospace GmbH, Überlingen, 7. Juli 2011
- E. Hack, *Bildgebende Eigenspannungsanalyse an Kunststoffbauteilen*, 71. Sitzung „Zuverlässigkeits-Pool“, EMPA, Dübendorf, 18. März 2011
- E. Hack, *Goal Line Technology*, 125th IFAB-Meeting, Newport, 01 March 2011
- 2010 E. Hack, *Interferometrische und thermografische Charakterisierung von Luft- und Raumfahrtstrukturen*, SVMT, 7. Metallographie-Tagung, Dübendorf, 8. November 2010
- 2009 P. Toggweiler, E. Hack, *So gefährlich sind die unscheinbaren Dinger*, 20 minuten online <http://www.20min.ch/print/story/17849384>, 9. April 2009
- E. Hack, *Measurement Uncertainty – dimensional measurement*, EMPA Topical Day on measurement uncertainty, Dübendorf, 18. Juni 2009
- 2007 E. Hack, *Thermografie als ZfP-Methode*, SGZP-Vortragsabend, FH-Aargau, Brugg-Windisch, 18. Januar 2007
- 2005 E. Hack, *DORMOUSE – Distributed Optical Reliability Monitors for On-board Use in Electronic Devices*, 55. Sitzung „Zuverlässigkeits-Pool“, EMPA, Dübendorf, 16. März 2005
- 2004 E. Hack, *Measurement Uncertainty-Beware these errors*, EMPA PhD seminar, Dübendorf, 13. Mai 2004
- E. Hack, *Messgrösse, Messwert, Messunsicherheit*, Tagung „Bildgebende ZfP-Methoden“, EMPA-Akademie, Dübendorf, 1. April 2004
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- 2002 E. Hack, *Bildgebende Interferometrie*, Tagung „Fortschrittliche ZfP-Methoden“, EMPA-Akademie, Dübendorf, 12. September 2002

- E. Hack, *Bestimmung der Messunsicherheit- Eine Einführung*, Kurs, EMPA-Akademie, Dübendorf, 17. April 2002
- E. Hack, *Unsicherheit von Fitparametern bei Ausgleichsrechnungen*, Interne Schulung, EMPA, Dübendorf, 16. Januar 2002
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- 2000 E. Hack, *Einflüsse und Unsicherheiten beim Messen elektrischer Grössen*, Interne Schulung, EMPA, Dübendorf, 2.11.2000
- E. Hack *Bildgebende interferometrische Verformungsmessungen*, Seminar: Das Bild als Qualitätsmassstab, 7.11.2000, EMPA-Akademie, Dübendorf
- E. Hack, R. Brönnimann *Genügt die Kalibrierung für die Messung im Alltag?*, SAPUZ-Tagung Block B: Ermittlung der Messunsicherheit, Messung elektrischer Grössen 6.-7.12. 2000, EMPA-Akademie, Dübendorf
- E. Hack *Abgeleitete Grössen der Geometrie und Materialkennwerte*, SAPUZ-Tagung Block E: Ermittlung der Messunsicherheit, Dimensionelle Messtechnik 6.-7.12.2000, EMPA-Akademie, Dübendorf
- 1999 E. Hack *Principles of Shearography*, Workshop: New Developments in Shearography, 20.1.1999, EMPA, Dübendorf, Switzerland
- E. Hack, Einführung in die Messunsicherheitsbestimmung, Interne Schulung, EMPA, Dübendorf, 1. Dezember 1999
- E. Hack, Der Leitfaden zur Angabe der Unsicherheit beim Messen "GUM" Interne Schulung, EMPA, Dübendorf, 2. Dezember 1999
- E. Hack, Messunsicherheit bei dimensionellen Messungen, Interne Schulung, EMPA, Dübendorf, 2. Dezember 1999
- 1998 E. Hack, *Speckle Effekt und Speckle Korrelations Interferometrie*, Seminarvortrag, Physikalisch-Chemisches Institut, Uni Zürich, 18. Juni 1998
- E. Hack, *Bildgebende Methoden in der Materialprüfung*, EMPA, Optik Kolloquium 29. Oktober 1998
- 1997 E. Hack, *Optische Messtechnik in der Materialprüfung*, ETH Zürich, Workshop Optische Messmethoden, 6. November 1997
- E. Hack, *Bildgebende interferometrische Methoden in der Materialprüfung*, ETH Zürich, Institut für Geodäsie und Fotogrammetrie, Seminarvortrag, 7. November 1997
- 1995 E. Hack, ETH Zürich, Institut für Leichtbau und Seilbahntechnik, Vorlesungsvortrag über Projektions-Moiré mit Demonstrationen (Dezember)

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Exhibitions

- 2004 E. Hack, P. Dias: Hannover fair, 19-24 April 2004, Exhibition of HIRONDELLE Laboratory-Prototype, Joint booth of "ETH-Rat" and "Technologiestandort Schweiz"
- 1999 Kästle Ralf, Hack Erwin: Laser 99, München, 14.-16. Juni 1999, Ausstellung und Vorführung MuWaS 3D-Shearography-Messgerät
- Kästle Ralf, Hack Erwin: ETH Zürich, SATW Tagung, 23.-25. September 1999, Ausstellung und Vorführung MuWaS 3D-Shearography-Messgerät
- 1998 E. Hack, E.M. Moser: Hannovermesse, April 1998, Ausstellung und Vorführung einer laseroptischen Apparatur zum Nachweis von Beschichtungsrissen im Folienzugversuch, Gemeinschaftsstand "Technologiestandort Schweiz"