

Wolfgang Kautek
Associate professor (Privatdozent*in)
Department of Physical Chemistry

Research interests

Nanotechnology and laser processing of interfaces with special focus on the NLO interaction of ultrashort laser pulses with mater, aperture-free scanning nearfield optical nanolithography, "Green" plating technology, femto- and bioelectrochemistry, and and heritage science such as laser cleaning of artifacts, historical photographyl and galvanotype.

Employment

Associate professor (Privatdozent*in)

Department of Physical Chemistry
University of Vienna
Wien, Austria
1 Oct 2018 → present

Russell Severance Springer Professor

University of California, Berkeley
Berkeley, United States
1 Jan 2017 → 1 Jan 2017

Professor for Physical Chemistry

Freie Universität Berlin (FU)
Berlin, Germany
1 Jan 2003 → 1 Jan 2004

Head of Laboratory

Federal Institute for Materials Research and Testing
Berlin, Germany
1 Jan 1988 → 1 Jan 2004

Publications

Experimental artistic research on the basis of the galvanography technique by Franz von Kobell (1840)

Ljubic Tobisch, V., Artaker, A., Klobassa, M. & Kautek, W. (Corresponding author), 1 Jan 2026, In: Journal of Cultural Heritage. 77, p. 87-95 9 p.

Electroforms for the book printing press in the nineteenth century: a case study on production technology and long-term corrosion

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Elemental Mapping of Historical Daguerreotypes Using Monochromatic Micro-XRF: Imaging, Degradation, and Conservation Potential

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Surface investigations of bronze and brass statuary monuments in open-air exposure

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The Preface

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Surface characterization of Austrian daguerreotype portraits

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Electrodeposition of Soft Magnetic Fe-W-P Alloy Coatings from an Acidic Electrolyte

Kovalska, N. (Corresponding author), Mulone, A., Sort, J., Klement, U., Blugan, G., Hansal, W. & Kautek, W. (Corresponding author), Apr 2023, In: Coatings. 13, 4, 801.

Hot electron electrochemistry at silver activated by femtosecond laser pulses

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Selective Electrochemical Treatment of Naturally Aged Silver Alloy Artefacts

Tobisch, V. L. (Corresponding author), Selimovic, A. & Kautek, W. (Corresponding author), 2023, In: Studies in Conservation. 68, 6, p. 657-668 12 p.

Femtosecond laser generation of bimetallic oxide nanoparticles with potential X-ray absorbing and magnetic functionalities for medical imaging applications

Naghilouye Hidaji, A. (Corresponding author), Bomati-Miguel, O., Subotic, A., Lahoz, R., Kitzler-Zeiler, M., Radtke, C., Rodriguez, M. A. & Kautek, W., 15 Oct 2021, In: Ceramics International. 47, 20, p. 29363-29370 8 p.

Study of the physicochemical surface alterations and incubation phenomena induced on iron targets by nanosecond pulsed laser ablation in liquids: Effect on productivity and characteristics of the synthesized nanoscale zero-valent iron (nZVI) particles

Lahoz, R. (Corresponding author), Naghilouye Hidaji, A., Kautek, W. & Bomati-Miguel, O. (Corresponding author), 1 May 2020, In: Applied Surface Science. 511, 13 p., 145438.

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Tobisch, V. L. (Corresponding author), Cortea, I. M., Ratoiu, L., Radvan, R. & Kautek, W., Jan 2020, In: Microchemical Journal. 152, 6 p., 104320.

Die Daguerreotypie zu Beginn der 1840er Jahre in Wien: eine Rekonstruktion von neu entwickelten Verfahren am Beispiel einer geätzten Daguerreotypieplatte aus dem Technischen Museum Wien

Ljubic Tobisch, V. & Kautek, W. (Corresponding author), 2020, In: Restauratorenblätter. 37, p. 147-161

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Influence of the aqueous solution composition on the morphology of Zn_{1-x}Mg_xO films deposited by spray pyrolysis

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Alkoxyated β-naphthol as an additive for tin plating from chloride and methane sulfonic acid electrolytes

Zajkoska, S. P. (Corresponding author), Mulone, A., Hansal, W. E. G., Klement, U., Mann, R. & Kautek, W., Feb 2018, In: *Coatings*. 8, 2, 17 p., 79.

Investigation of the wavelength dependence of laser stratigraphy on Cu and Ni coatings using LIBS compared to a pure thermal ablation model

Paulis, E. (Corresponding author), Pacher, U., Weimerskirch, M. J. J., Nagy, T. O. & Kautek, W., Dec 2017, In: *Applied Physics A: materials science & processing*. 123, 12, 9 p., 790.

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Naghilouye Hidaji, A., Armbruster, O. & Kautek, W., 22 May 2017, *Book of Abstracts*.

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Schubert, J., Naghilouye Hidaji, A., Armbruster, O., Zhigilei, L. V. & Kautek, W., 22 May 2017, *Book of Abstracts*.

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Armbruster, O., Pöhl, H., Trettenhahn, G. & Kautek, W., 22 May 2017, *Book of Abstracts*.

Influence of laser irradiation area and pulse number on top-down (ablation) and bottom-up (LIPSS) processes

Armbruster, O., Naghilouye Hidaji, A., Kitzler, M. & Kautek, W., 22 May 2017, *Book of Abstracts*.

Investigation of the layer thickness- and wavelength-dependence of laser stratigraphy on Cu and Ni coatings using LIBS

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Laser Ablation of Metals in Liquid Contact

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Activities

Physical Chemistry at the University of Vienna – Recent Research Highlights

Lieberzeit, P. (Invited speaker), Mezger-Backus, E. H. G. (Contributor) & Kautek, W. (Contributor)
24 Sept 2019

China auf dem Weg zur Wissenschaftsgroßmacht?

Weigelin-Schwiedrzik, S. (Speaker) & Kautek, W. (Speaker)
20 May 2019

LASER ABLATION OF METALS IN LIQUID CONTACT

Kautek, W. (Speaker)
25 Sept 2017

Liquid-Assisted Pulsed Laser Ablation: A Novel Route to Produce Contrast Agents for Multimodal Imaging Diagnosis

Bomatí Miguel, O. (Contributor), Lahoz, R. (Contributor), Lennikov, V. (Contributor), Subotic, A. (Contributor), Rodriguez, M. A. (Contributor), Rentenberger, C. (Speaker), Kautek, W. (Contributor) & Naghilou, A. (Contributor)
25 Jun 2017 → 29 Jun 2017

Direct Fabrication of Colloidal Amorphous Zero Valent Iron (nZVI) Nanoparticles by Liquid-Assisted Pulsed Laser Ablation

Bomatí Miguel, O. (Contributor), Lahoz, R. (Contributor), Rentenberger, C. (Selected presenter) & Kautek, W. (Contributor)
22 May 2017 → 26 May 2017

Laser Ablation of Metals in Liquid Contact

Kautek, W. (Speaker)
22 May 2017

Nanotribology of anions at gold electrodes: an in situ electrochemical lateralforce microscopy study

Kautek, W. (Speaker)
22 May 2017

Apertureless scanning near-field nanolithography on metal and polymer films with a femtosecond Yb-doped fiber laser oscillator

Falcon Casas, I. (Contributor), Armbruster, O. (Contributor), Zhu, L. (Contributor) & Kautek, W. (Contributor)
20 Mar 2017

Multiple wavelength stratigraphy by laser-induced breakdown spectroscopy

Kautek, W. (Invited speaker), Pacher, U. (Contributor), Dinu, M. (Contributor), Nagy, T. O. (Contributor) & Rădvan, R. (Speaker)
17 Feb 2017

Femtosecond and Nanosecond Laser Materials Machining: A Unified Quantitative Model of Incubation in Experimental Accordance

Kautek, W. (Invited speaker), Armbruster, O. (Contributor), Naghilouye Hidaji, A. (Contributor) & Kitzler, M. (Contributor)
8 Feb 2017

Laser Ablation of Metals in Liquid Contact and the Generation of Colloidal Nanoparticles

Kautek, W. (Invited speaker), Lasemi, N. (Contributor), Pacher, U. (Contributor), Zhigilei, L. (Contributor) & Bomati Miguel, O. (Contributor)
8 Feb 2017

Laser Assisted Synthesis of Colloidal Nanoparticles in various Fluids

Kautek, W. (Invited speaker)
9 May 2016 → 12 May 2016

Core-Shell Tungsten-Iron Nanoparticles by Laser-Assisted Synthesis in Liquid Contact

Lasemi, N. (Contributor), Bomati Miguel, O. (Contributor), Kautek, W. (Contributor), Pacher, U. (Contributor) & Rentenberger, C. (Contributor)
May 2016

Laser-Assisted Generation of Nickel Nanoparticles in Liquid

Lasemi, N. (Contributor), Pacher, U. (Contributor), Friedmann, J. (Contributor), Pum, D. (Contributor), Rentenberger, C. (Contributor), Peterlik, H. (Contributor) & Kautek, W. (Contributor)
May 2015

Atomic Emission Stratigraphy by Laser-Induced Plasma Spectroscopy: Quantitative Depth Profiling of Metal Thin Film Systems

Pacher, U. (Contributor), Nagy, T. O. (Contributor), Armbruster, O. (Contributor), Pöhl, H. (Contributor) & Kautek, W. (Contributor)
23 Sept 2013

COMPARATIVE ANALYSIS OF TETHERED AND UNTETHERED POLYMERS CLOSE TO A SURFACE INVESTIGATED BY MONTE CARLO SIMULATION

Kautek, W. (Speaker)
23 Sept 2013

FEMTOSECOND PULSE LASER NEAR-FIELD TIP-ENHANCED NANOSCALE PROCESSING OF GRAPHENE, METALLIC AND POLYMERIC THIN FILMS

Kautek, W. (Contributor)
23 Sept 2013

MECHANISTIC STUDY OF THE PULSE LASER INDUCED PARTICLE SEPARATION FROM POLYMER SURFACES

Kautek, W. (Speaker)
23 Sept 2013

Competition of Chaotropic and Cosmotropic Ions with Surface Proteins: Electrochemical In Situ FTIR and EQMB Investigations

Werzer, T. (Contributor), Gomes, W. (Contributor), Zafiu, C. (Contributor), Sleytr, U. B. (Contributor), Trettenhahn, G. (Contributor) & Kautek, W. (Contributor)
2013

Laser-Pulse-Induced in-situ Diagnostics of Processes at Solid-Fluid Interfaces

Nagy, T. O. (Contributor), Armbruster, O. (Contributor), Pacher, U. (Contributor), Soyka, L. (Contributor), Trettenhahn, G. (Contributor) & Kautek, W. (Contributor)
2013

Physical Chemistry and Nanotechnology of Interfaces

Kautek, W. (Speaker)

16 Oct 2012

Electrochemical investigation of single-walled carbon nanotubes immobilized on gold electrodes

Kautek, W. (Contributor)

4 Oct 2009

In-situ infra-red spectroscopy study of double layer structure in protein self-assembly processes on gold

Kautek, W. (Contributor)

4 Oct 2009

213 nm laser treatment of Al₂O₃ and AlN ceramics

Kautek, W. (Contributor)

28 Sept 2009

213 nm laser treatment of cornea

Kautek, W. (Contributor)

28 Sept 2009

213 nm and 532 nm solid state laser treatment of biogenetical fibrous materials

Kautek, W. (Contributor)

21 Sept 2009

In-situ-Investigations of Electrified Solids

Kautek, W. (Speaker)

24 Aug 2009

Laser cleaning of works of art: a nanoscale challenge

Kautek, W. (Invited speaker)

2 Jul 2009

Thermal diffusion control of femtosecond-laser-generated modifications of nanoscale pulsed-laser deposited diamond-like carbon films

Kautek, W. (Contributor)

14 Jun 2009

In-situ Investigations of adsorption and conversion processes of electrified metallic solids

Kautek, W. (Speaker)

31 May 2009

In-situ IR and EQMB investigations of buffer and S-layer protein adsorption processes

Kautek, W. (Contributor)

31 May 2009

Electrochemical investigation of single-walled carbon nanotubes immobilized on Au electrodes

Kautek, W. (Contributor)

21 May 2009

In-situ infra-red spectroscopy and electrochemical quartz microbalance investigations of buffer and S-layer protein adsorption processes

Kautek, W. (Contributor)

21 May 2009

Thermal diffusion control of femtosecond-laser-generated modifications of nanoscale pulsed-laser deposited diamond-like carbon films

Kautek, W. (Contributor)
21 May 2009

Electrochemical Quartz Microbalance and In-situ Infra-Red Spectroscopy Investigations of Buffer and S-layer Protein Adsorption Processes

Kautek, W. (Contributor)
11 Mar 2009

Femtosecond lasers in nano- and micro-processing: physico-chemical aspects

Kautek, W. (Speaker)
11 Mar 2009

Thermal diffusion control of femtosecond-laser-generated modifications of nanoscale pulsed-laser deposited diamond-like carbon films

Kautek, W. (Contributor)
11 Mar 2009

Ultra-fast laser pulse near-threshold lattice perturbation of silicon and stainless steel surfaces

Kautek, W. (Contributor)
11 Mar 2009

Electrochemical Quartz Microbalance and In-situ Infra-Red Spectroscopy Investigations of Buffer and S-layer Protein Adsorption Processes

Kautek, W. (Contributor)
23 Feb 2009

Laser Cleaning of Fibrous Substrates

Kautek, W. (Speaker)
23 Feb 2009

Simultaneous UV-IR Nd:YAG Laser Cleaning of Leather Artefacts

Kautek, W. (Speaker)
23 Feb 2009

Thermal diffusion control of femtosecond-laser-generated modifications of nanoscale pulsed-laser deposited diamond-like carbon films

Kautek, W. (Contributor)
23 Feb 2009

Ultra-fast laser pulse near-threshold lattice perturbation of silicon and stainless steel surfaces

Kautek, W. (Contributor)
23 Feb 2009

Electrochemical and UV/vis spectroscopic investigations and digital simulation of p-nitro benzoic acid and the novel catalyst $[\text{Fe}_6\text{O}_3(\text{OH})(\text{p-NO}_2\text{C}_6\text{H}_4\text{COO})_{11}(\text{DMF})_4]$ in non aqueous solutions

Forster, M. (Contributor), Nagl, M. (Contributor), Schmid, W. (Contributor), Kautek, W. (Contributor) & Trettenhahn, G. (Contributor)
2009

Electrochemical investigation of single-walled carbon nanotubes immobilized on gold electrodes

Huber, C. (Contributor), Köberl, A. (Contributor), Trettenhahn, G. (Contributor) & Kautek, W. (Contributor)
2009

Electrochemical investigation of SWCNT immobilized on Au electrodes

Huber, C. (Contributor), Köberl, A. (Contributor), Trettenhahn, G. (Contributor) & Kautek, W. (Contributor)
2009

In-situ infra-red spectroscopy and electrochemical quartz microbalance investigations of buffer and S-layer protein adsorption processes

Zafiu, C. (Contributor), Trettenhahn, G. (Contributor), Pum, D. (Contributor), Sleytr, U. B. (Contributor) & Kautek, W. (Contributor)
2009

Laser-induced Nanoscale Processes at the Solid-Liquid Interface

Kautek, W. (Invited speaker)
27 Nov 2008

60-fs laser pulse modifications of collagen and gelatine

Forster, M. (Contributor), Gaspard, S. (Contributor), Haselberger, C. (Contributor), Huber, C. (Contributor), Zafiu, C. (Contributor), Trettenhahn, G. (Contributor), Castillejo, M. (Contributor) & Kautek, W. (Contributor)
13 Sept 2008

Femtosecond lasers in micro-materials processing: physico-chemical aspects and applications

Kautek, W. (Invited speaker)
13 Sept 2008

Lasers in Cultural Heritage: the Non-Contact Intervention

Kautek, W. (Invited speaker)
13 Jul 2008

Fs-ns-Laser phase separation: the nanoscale challenge in cleaning of works of art

Kautek, W. (Invited speaker)
8 Jul 2008

Laser cleaning of works of art: a nanoscale challenge

Kautek, W. (Invited speaker)
2 Jul 2008

Ultrafast Laser Processes at Interfaces: Physico-Chemical Aspects and Applications

Kautek, W. (Invited speaker)
27 May 2008

Laser-induced Processes at the Electrified Solid-Liquid Interfaces

Kautek, W. (Invited speaker)
7 May 2008

60-fs laser pulse modifications of collagen and gelatine

Forster, M. (Contributor), Gaspard, S. (Contributor), Castillejo, M. (Contributor) & Kautek, W. (Contributor)
1 May 2008

Laser-Anwendungen in der Materialchemie

Kautek, W. (Invited speaker)
12 Mar 2008

Nanotechnologien der Grenzflächen

Kautek, W. (Invited speaker)
16 Feb 2008

In-situ Infrared Spectroscopy and Electrochemical Quartz Microbalance Investigations of Buffer and S-Layer Protein Adsorption Processes

Zafiu, C. (Contributor), Schrems, M. (Contributor), Trettenhahn, G. (Contributor), Pum, D. (Contributor), Sleytr, U. B. (Contributor) & Kautek, W. (Contributor)

2008

Physical Chemistry and Nanotechnology of Polymers

Kautek, W. (Contributor)

2008

Thermal diffusion control of fs-laser pulse-generated modifications of nanoscale diamond-like carbon pulsed-laser deposited films

Forster, M. (Contributor), Égerházi, L. (Contributor), Szörényi, T. (Contributor) & Kautek, W. (Contributor)

2008

Ultra-fast laser pulse near-threshold lattice perturbation of silicon and stainless steel surfaces

Forster, M. (Contributor), Gaspard, S. (Contributor), Haselberger, C. (Contributor), Huber, C. (Contributor), Zafiu, C. (Contributor), Trettenhahn, G. (Contributor), Castillejo, M. (Contributor) & Kautek, W. (Contributor)

2008