

Kern, Wolfgang, Univ.-Prof. Dr.

Born in Linz, Austria, 12. 10. 1963

Employed at the
Montanuniversität Leoben (MUL), Chair of Chemistry of Polymeric Materials
Franz-Josef-Strasse 18, A-8700 Leoben, and at the

Polymer Competence Center Leoben GmbH, Roseggerstrasse 12, A-8700 Leoben (Chief
Scientific Officer CSO of PCCL)

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Education and Employment**From (year) to (year)**

1974	1982	Gymnasium in Linz
1982	1989	Study of Chemistry, University of Graz
1989		Graduation "Mag. rer. nat."
1989	1992	PhD thesis at Graz University of Technology (TU Graz)
	1992	PhD degree in Chemistry ("Dr. techn.")
1991	1998	University assistant at TU Graz, Institute of Chemistry and Technology of Organic Materials
1998		Habilitation (venia legendi) at TU Graz
1998		Appointment as an Associate Professor at TU Graz
1999	2006	Project leader in "„Spezialforschungsbereich (SFB) Elektroactive Materials"
2002	ongoing	Project leader and Key Resarcher in the Polymer Competence Center Leoben (PCCL)
2003		Stay at the University of Sheffield (UK) as a visiting scientist
2006	ongoing	Project leader in the National Research Network (NFN) "Interface Controlled and Functionalized Organic Films"
2007		Appointment as a full professor at the Montanuniversität Leoben (MUL); head of the Chair for „Synthesis of special and functional polymers" at the Institute of Chemistry of Polymeric Materials
2008		Appointment as the head of the Chair of Chemistry of Polymeric Materials at MUL
2008	ongoing	Scientific Director of the PCCL
2011	ongoing	Chief Scientific Officer CSO of the PCCL

Graduate and postdoctoral advisors of W. Kern

Master thesis: Assoc. Prof. Dr. Kurt Kalcher, Univ. of Graz (Institute of Analytical Chemistry);
PhD. thesis and Habilitation: Prof. Klaus Hummel, Graz Univ. of Technology (Institute of
Chemistry and Technology of Organic Materials); research stay with Prof. Mike Turner at the
University of Sheffield (UK), Dept of Chemistry (2003)

Research (main areas)

Special and functional polymers
Polymer photochemistry
Surface modification of polymers
Chemistry at interfaces of inorganic/organic materials
Organic functionalization of inorganic surfaces and particles

Publications

Author and co-author of > 130 papers in peer-reviewed journals
15 patents
h-factor = 20

Honours and Awards

2007: distinction as inventor at TU Graz
2009: distinction as inventor at TU Graz
2009: Science to Business Award from the AUstrian Ministry of Economics (on behalf of
PCCL)
2012 fast Forward Award from the Styrian Business Promotion Agency SFG (on behalf of
PCCL)
2013: Golden Badge of Honour from the Austrian Society of Plastics Processors (VÖK)

Publications since 2004

D. Wright, E. Brasselet, J. Zyss, G. Langer, W. Kern, "Dye doped organic DFB lasers with index and surface gratings: the role of pump polarization and molecular orientation", J. Opt. Soc. Am. B 21, 944-950 (2004)
C. Preininger, U. Sauer, W. Kern, J. Dayteg, "Photoactivatable copolymers of vinylbenzylthiocyanate as immobilization matrix for biochips", Anal. Chem. 76, 6130-6136 (2004)
B. Wendl, H. Droschl, W. Kern, "Comparative study of polymerization lamps of various technologies by determining the degree of curing of composite samples using infrared spectroscopy", Eur. J. Orthodontics 25, 545 (2004)
D. Wright, E. Brasselet, J. Zyss, G. Langer, A. Pogantsch, F.F. Iskra, T. Neger, W. Kern, "Multiple Grating Organic Distributed Feedback Lasers", Opt. Express 12, 325 (2004)
E. Brasselet, D. Wright, J. Zyss, G. Langer, W. Kern, "Spectral encoding of the polarization state of light in spatially multiplexed dye-doped organic distributed feedback lasers", Opt. Lett. 29, 1309-1311 (2004)

M. R. Weinberger, G. Langer, A. Pogantsch, A. Haase, E. Zojer, W. Kern, "Continuously color-tunable rubber laser", <i>Adv. Mater.</i> 16, 130 (2004)
C. Buchgraber, J. Spanring, A. Pogantsch, M. Turner, W. Kern, „Organosilanes as new reagents for the photopatterning of PPV type polymers”, <i>Synth Met.</i> 147, 91 – 95 (2004)
A. Pogantsch, S. Rentenberger, G. Langer, J. Keplinger, W. Kern, E. Zojer, Tuning the electroluminescence color in polymer light emitting devices using the thiol-ene photoreaction, <i>Adv. Funct. Mater.</i> 15, 403-409 (2005)
A. Temel, R. Schaller, M. Höchtl, W. Kern, "Determination of residual vulcanization accelerators in natural rubber latex films using FTIR spectroscopy", <i>Rubber Chem. Technol.</i> 78, 28 - 41(2005)
U. Meyer, W. Kern, V. Ribitsch, M.F. Ebel, R. Svagera, „Photochemical surface modification of poly(tetrafluoroethylene) with hydrazine: characterization of the surface with zeta-potential measurements and spectroscopic techniques“, <i>Macromol. Chem. Phys.</i> 206, 210-217 (2005)
U. Sauer, C. Preininger, G. Krumpel, N. Stelzer, W. Kern, „Signal enhancement of protein chips”, <i>Sensors and Actuators B</i> 107, 178-183 (2005)
S. Temmel, W. Kern, T. Luxbacher, „Zeta potential of photochemically modified polymer surfaces”, <i>Progr. Colloid Polym. Sci.</i> 132, 83-90 (2005)
J. Spanring, Ch. Buchgraber, M.F. Ebel, R. Svagera, W. Kern, „UV assisted surface modification of polystyrene in the presence of trialkylsilanes“, <i>Macromol. Chem. Phys.</i> 206, 2248-2256 (2005)
J. Spanring, Ch. Buchgraber, J. Spanring, W. Kern, A. Pogantsch, „UV-induced modification of conjugated polymers using gaseous organosilanes”, <i>Macromol. Chem. Phys.</i> 206, 2362 – 2372 (2005)
J. Spanring, Ch. Buchgraber, M.F. Ebel, R. Svagera, W. Kern, "Trialkylsilanes as reagents for the UV-induced surface modification of 1,4-polybutadiene", <i>Polymer</i> 47, 156-165 (2006)
T. Höfler, M.R. Weinberger, W. Kern, S. Rentenberger, A. Pogantsch, „Modifying the output characteristics of an organic light emitting device by refractive index modulation“, <i>Adv. Funct. Mater.</i> 16, 2369-2373 (2006)

G. Seyfriedsberger, K. Rametsteiner, W. Kern, „Polymer compounds with antimicrobial surface properties“, <i>Eur. Polym. J.</i> 42, 3383-3389 (2006)
A. Lex, G. Trimmel, W. Kern, F. Stelzer, „Photosensitive polynorbornene containing the benzyl thiocyanate group – synthesis and patterning“, <i>J. Mol. Catal. A</i> 254, 174-179 (2006)
Ch. Buchgraber, A. Pogantsch, St. Kappaun, J. Spanring, W. Kern, „Luminescent copolymers for applications in multi-colour light emitting devices“, <i>J. Polym. Sci. A</i> 44, 4317-4327 (2006)
M. Weinberger, S. Rentenberger, W. Kern, “Selective immobilization of gold nanoparticles on the surface of a photoreactive polymer”, <i>Monatshefte Chemie (Chemical Monthly)</i> 138, 309-314 (2007)
T. Höfler, T. Griesser, X. Gstrein, G. Trimmel, G. Jakopic, W. Kern, “UV reactive polymers for refractive index modulation based on the photo-Fries rearrangement”, <i>Polymer</i> 48, 1930-1939 (2007)
T. Griesser, T. Rath, H. Stecher, R. Saf, W. Kern, G. Trimmel, „Photoreactive polynorbornene bearing 4-(N,N-diphenylamino)benzoate groups: synthesis and application in electroluminescent devices“, <i>Monatshefte Chemie (Chemical Monthly)</i> 138, 269-276 (2007)
C. Buchgraber, R. Svagera, M.F. Ebel, H. Schröttner, W. Kern, “UV assisted surface modification of polybutadiene with phosphorus containing groups”, <i>Macromol. Chem. Phys.</i> 208, 1159 – 1167 (2007)
U. Daschiel, T. Höfler, W. Kern, G. Jakopic, V. Schmidt, “Selected polymers containing aromatic ester units: synthesis, photoreactions and refractive index modulation”, <i>Macromol. Chem. Phys.</i> 208, 1190-1201 (2007)
S. Temmel, W. Kern, T. Luxbacher, „Surface modification of polyethylene by photosulfonation“, in: <i>Polymer Surface Modification: Relevance to Adhesion</i> , Vol. 4 (Ed.: K.L. Mittal), pp. 157-170, VSP / Brill Academic Publishers, Utrecht (NL), 2007
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C. Korepp, W. Kern, E.A. Lanzer, P.R. Raimann, J.O. Besenhard, M. Yang, K.-C. Möller, D.-T. Shieh, M. Winter, „4-Bromobenzyl isocyanate versus benzyl isocyanate—New film-forming electrolyte additives and overcharge protection additives for lithium ion batteries“, <i>Journal of Power Sources</i> 174, 637-642 (2007)
C. Korepp, W. Kern, E.A. Lanzer, P.R. Raimann, J.O. Besenhard, M.H. Yang, K.-C. Möller, D.-T. Shieh, M. Winter, „Isocyanate compounds as electrolyte additives for lithium-ion batteries“, <i>Journal of Power Sources</i> 174, 387-393 (2007)
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U. Daschiel, J. Spanring, M. F. Ebel, R. Svagera, H. Schröttner, W. Kern, “Surface Modification of Polyethylene by VUV Irradiation in the Presence of Trimethylsilane and Oxygen”, <i>Macromol. Chem. Phys.</i> 209, 1232-1239 (2008)

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T. Griesser, J. Adams, J. Wappel, W. Kern, G. J. Leggett, G. Trimmel, “Micrometer- and nanometer scale patterning using the photo-Fries rearrangement: towards selective execution of molecular transformations with nanoscale spatial resolution”, Langmuir 24, 1242 (2008)
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T. Griesser, J.-C. Kuhlmann, M. Wieser, W. Kern, G. Trimmel, “UV induced modulation of the refractive index and the surface properties of photoreactive polymers bearing N-phenylamide groups”, Macromolecules, 42, 725-731 (2009)
T. Griesser, T. Höfler, G. Jakopic, M. Belzik, W. Kern, G. Trimmel, “Refractive Index Modulation in Polymers Bearing Photoreactive Phenyl and Naphthyl Ester Units Using Different UV Wavelengths” J. Mater. Chem. 19, 4557-4565 (2009)
T. Höfler, A. Track, P. Pacher, Q. Shen, H.-G. Flesch, T. Griesser, A. Lex, G. Hlawacek, H. Hoffmann, M. Ramsey, R. Schennach, C. Teichert, G. Trimmel, W. Kern, “Photoreactive molecular layers containing aryl ester units: preparation, UV patterning and post-exposure modification”, Materials Chemistry and Physics 119, 287-293 (2010)
T. Griesser, A. Wolfberger, M. Edler, M. Belzik, G. Jakopic, G. Trimmel, W. Kern, UV-induced refractive index modulation of photoreactive polymers bearing N-acylcarbazole groups, Journal of Polymer Science A, Polymer Chemistry 48, 3507-3514 (2010)
S. Schlögl, W. Kern, N. Aust, R. Schaller, A. Holzner, Survey of chemical residues and biological evaluation of photochemically pre-vulcanized surgical gloves, Monatshefte für Chemie (Chemical monthly) 141, 1365-1372 (2010).
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S. Schloegl, A. Temel, W. Kern, R. Schaller, A. Holzner, Manufacture of non-allergenic surgical gloves via UV-techniques, Kautschuk, Gummi, Kunststoffe (KGK), 2010, 5, 187-192
S. Schlögl, W. Kern, A. Temel, R. Schaller, A. Holzner, Biological evaluation and chemical characterization of photochemically crosslinked surgical gloves, Rubber World 243, 17-20 (2010)
S. Schloegl, M. Reischl, V. Ribitsch, W. Kern, UV induced microcellular foaming - A new approach towards the production of 3D structures in offset printing, Progress in Organic Coatings, 2011, 73, 54-61.
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S. Schloegl, A. Temel, R. Schaller, A. Holzner, W. Kern, Flourination of Elastomer Materials, European Polymer Journal 47, 2321-2330 (2011)
R. Woods, S. Feldbacher, G. Langer, V. Satzinger, V. Schmidt, W. Kern, Epoxy silicone based matrix materials for two-photon patterning of optical waveguides, Polymer 52, 3031-3039 (2011)
E. Kreuzwiesner, N. Noormofidi, F. Wiesbrock, W. Kern, K. Rametsteiner, F. Stelzer, Contact Bactericides and Fungicides on the Basis of Amino-Functionalized Poly(norbornene)s, Journal of Polymer Science : A, Polymer Chemistry 48, 4504-4514 (2011)

R. Woods, S. Feldbacher, W. Kern, Functional flexible organic-inorganic hybrid polymer for two photon patterning of optical waveguides, *Optical Materials* 34, 772-780 (2012)

T. Grießer, V. Radl, T. Köpplmayr, A. Wolfberger, M. Edler, A. Pavitschitz, M. Kratzer, C. Teichert, T. Rath, G. Trimmel, C. Schwabegger, C. Simbrunner, H. Sitter, W. Kern, UV-Induced Modulation of the Conductivity of Polyaniline: Towards a Photo-Patternable Charge Injection Layer for Structured Organic Light Emitting Diodes, *Journal of Materials Chemistry* 22, 2922-2928 (2012)

N. Muhr, W. Kern, T. Grießer, Patterned immobilisation of silicon dioxide nanoparticles on the surface of a photosensitive polymer, *Thin Solid Films* 520, 1789-1793 (2012)

R. A. Moutaigne, G. Hernandez-Sosa, T. Grießer, C. Simbrunner, T. Höfler, G. Trimmel, W. Kern, Q. Shen, C. Teichert, G. Schwabegger, H. Sitter, S. N. Sariciftci, Photo-Fries-based photosensitive polymeric interlayers for patterned organic devices, *Applied Physics A*, 107, 985-993 (2012)

T. Grießer, S. Radl, A. Paveschitz, C. Teichert, M. Edler, T. Köpplmayer, T. Rath, G. Trimmel, G. Schwabegger, C. Simbrunner, H. Sitter, W. Kern, Patterned Modulation of the Conductivity of Polyaniline by Means of Photolithography, *Chemistry of Materials* 22, 2922 (2012)

E. Ziegler, J. Macher, D. Gruber, P. Pölt, W. Kern, T. Lummersdorfer, C. Feldgitscher, A. Holzner, G. Trimmel, Investigation of the influence of stearic acid on rubber-brass adhesion, *Rubber Chem. Technol.* 85, 264-276 (2012)

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Patents
W. Kern, AT 400842, granted 25.3.1996, "Vinylbenzylthiocyanate und -selenocyanate und deren strahlungsempfindliche Polymere".
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