1st Vienna Polymer-Group Symposium
27.02.2018, Universität Wien

presented by

cubicure

supported by

AGRANA Research & Innovation Center

fsh HOLDING

Schremser DAS WALDVIERTLER BIER

universität wien

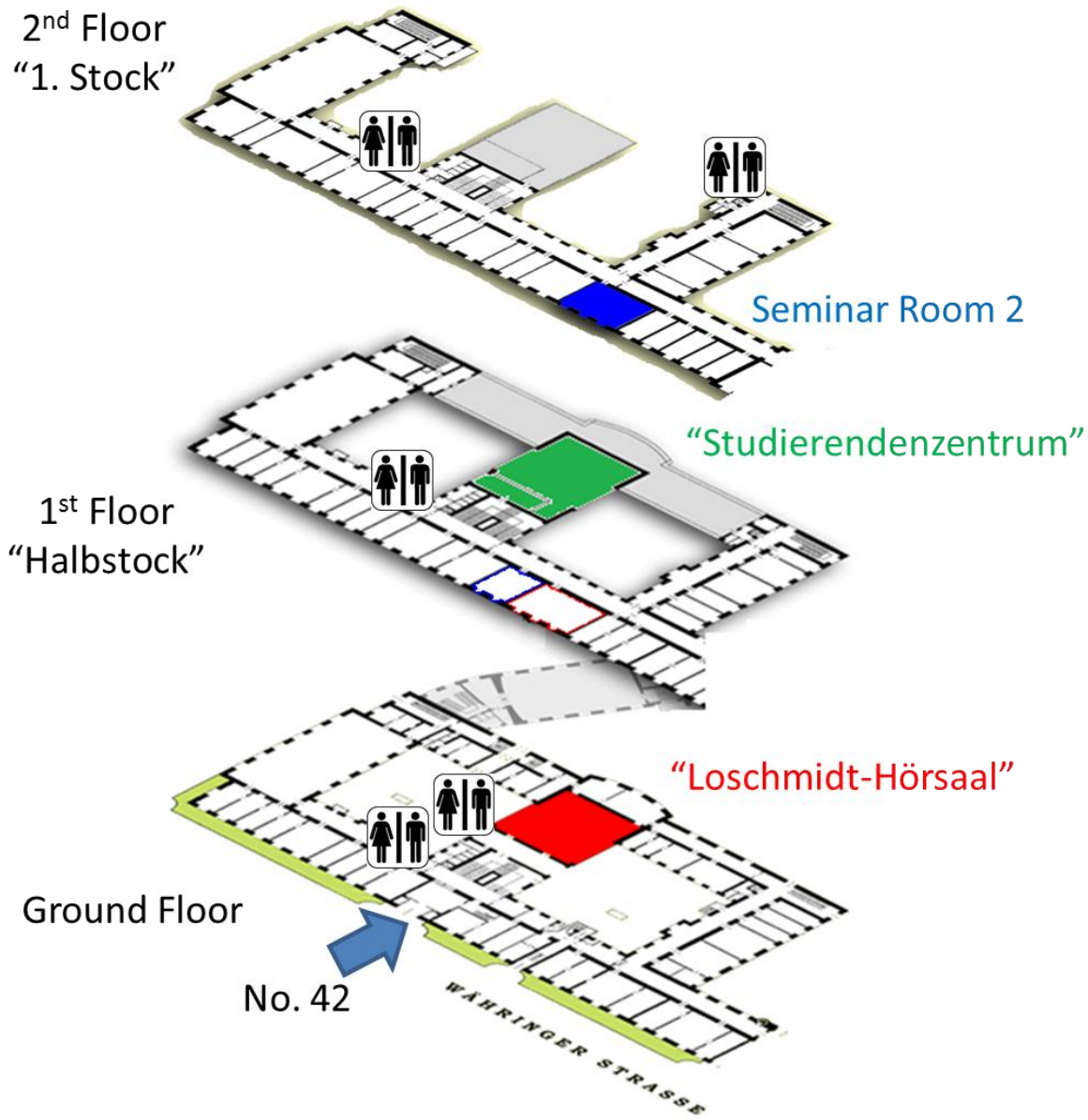
Meeting Venue: Währinger Straße 42, 1090 Wien

Main Lecture Theatre: Hörsaal 2 – Loschmidt-Hörsaal

Coffee-Breaks: Studierendenzentrum

Lunch: Studierendenzentrum/Seminar-Room 2

Poster: Studierendenzentrum/Seminar-Room 2



AGRANA Research & Innovation Center (ARIC)

Who are we?

Barbara Fahrngruber, MSc, Starch Technology barbara.fahrngruber@agrana.com
Dr. Berharnd Seidl, stärkebasierte Klebstoffe bernhard.seidl@agrana.com
Dr. Martin Kozich, Starch Non-Food martin.kozich@agrana.com

Cubicure

Who are we?

Dr. Robert Gmeiner, CEO Cubicure robert.gmeiner@cubicure.com
Dr. Markus Pfaffinger, Business Development markus.pfaffinger@cubicure.com
Bernhard Steyrer, MSc., Material Development bernhard.steyrer@cubicure.com
Christian Frank, MSc., Material Development christian.frank@cubicure.com

What do we do? Lithographic additive manufacturing of high performance polymers and composites. Cubicure is a spin-off of TU Wien (Institute for materials science and technology) and an interdisciplinary young team of engineers, chemists and business experts in the field of additive manufacturing.

What can we offer? We are a material and process developer offering the first of its kind Hot Lithographic 3D-printing machines as well as suitable performance polymers for product development and industrial part production. We are also a leading partner in application-driven material development on a customized base. We are your expert partner in advanced polymer 3D-printing technologies!

What would we need? We are continuously looking for partners in molecular synthesis as well as material analysis in the field of chemical, mechanical and thermal analysis. We are further interested in polymer process engineering and sustainable models for material lifecycle and supply chains. We are especially open for projects concerning bio-based raw materials, biodegradable photopolymers, smart materials and function-driven, polymer-based composite formulations.

FSH/Franz S. Huemer GmbH

Who are we?

Andreas Eder, MBA, Technical Director TiszaTextil aeder@fsh-holding.at

RESEARCH & TESTING-INSTITUTES

OFI: Österreichisches Forschungsinstitut für Chemie und Technik

Who are we?

Udo Pappler udo.pappler@ofi.at
Dietmar Loidl dietmar.loidl@ofi.at

TGM Kunststofftechnik

LKT-TGM Laboratory of Polymer Engineering, Center of Competence in Polymer and Environmental Engineering

Who are we?

Harald Wilhelm hwilhelm@tgm.ac.at
Johanna Eichelter jeichelter@fsh-holding.at

What do we do? Polymer compound development and optimization, Development of new extrusion technologies, Injection mould and extrusion die design, Design and construction of special measuring/testing devices, Image processing, FEM simulation (Ansys, Moldflow), Component testing with individual setup, Testing of biocidal activity.

What can we offer? Polymer processing: Compounding (lab scale, 25 mm screw), special experience with starch based biopoymers and compounding of biocidal agents, Extrusion (pipe 32x3 mm, flat film 1x80 mm, film blowing, blow moulding), Injection moulding (up to 160 t machine). Polymer testing: Rheometer (melt: cone and plate, solid: DMA torsion, G-T-diagram), Contact angle measurement, Microbacterial lab for testing of biocidal activity.

TGM-VAKU Staatliche Versuchsanstalt – TGM, Kunststoff- und Umwelttechnik Federal Institute of Technology, Department of Plastics Technology and Environmental Engineering

Who are we?

Thomas Kratochvila tkratochvilla@tgm.ac.at
Dieter Hohenwarter dieter.hohenwarter@tgm.ac.at

What do we do? Testing of all kind of plastics, Accredited according to EN ISO/IEC 17025 and EN ISO/IEC 17020 as testing laboratory and inspection body.

What can we offer? Testing of plastics piping systems (ISO 9080, RCP, …), Fracture behaviour (CRB, ANPT, FNCT, point load test), Burning behaviour (cone calorimeter, UL 94, spread of flame), Instrumented impact testing, Long term creep behaviour with video extensiometer (stepwise isothermal method, SIM), Climate chamber (1,6 x 1,6 x 2,9 m and 2,8 x 1,6 x 2,0 m, T = -40 °C up to +80 °C and humidity), Artificial and natural weathering (Xenon, UV, salt spray testing), Oxygen diffusion behaviour of piping systems, FTIR-microscope and FTIR-TGA coupling, Thermal analysis.

What would we need? GPC (for PE), Diffusion behaviour, Heat conductivity, Complete wet chemical analysis.

BOKU

Chemie nachwachsender Rohstoffe

What do we do? Structure, swelling and dissolution of cellulose, cellodextrins and cellulose model compounds; Advanced cellulose analytics; Chromophores in fibers, pulp and other cellulosic materials; Cellulose solvents – syntheses, chemistry and side reactions; Industrial fiber-making: Lyocell and Viscose processes; Paper and textile conservation; Fiber and textile chemistry; Fundamental chemistry of phenols and antioxidants; Vitamin E – novel derivatives and applications; Radical chemistry and spin traps; Green chemistry; General heterocyclic chemistry; Aero- and carbogels from (modified) plant and bacterial cellulose; Supercritical carbon dioxide processing; Artificial and natural humic substances; Cellulose materials and modifications; Functional nanocellulose materials; Biopolymer based materials, main focus on cellulose (nanocellulose, regenerated cellulose) and lignin; (composite) gels; Ultra-lightweight aerogels and carbon aerogels (wound dressings, tissue engineering, thermal superinsulation, true volumetric displays), electrode materials (lignin carbogels).

What can we offer? HPTLC (Camag), APC, GPC-systems (DMAc/LiCl, DMSO/LiBr, aqueous) with MALLS, RI, DRI, Fluorescence, UV-DAD (Agilent, Shodex, Wyatt); Asymmetric-flow field-flow fractionation (AsFlFFF/MALLS , Wyatt); Dynamic light scattering detector (Wyatt); characterization of lignocelluloses, cellulose carboxyl and carbonyl profiling, solid state NMR 400 MHz, UV with integrating sphere, NIR with fibre optics (MPA, Bruker), Supercritical CO2 system (Separex); Microwave reactor with pressure, extraction and gas modules (MLS); Ozoniser (BBC); Wrinkle tester (custom built); Aerosol generator (ZfB); Accelerated solvent extractor (Dionex); Cryomill (Retsch); Preparative chemistry and chemical synthesis: Cellulose derivatives and products; lignin derivatives an model compounds.

What would we need? X-ray photoelectron spectroscopy, He pycnometry, electrochemical characterization of carbon aerogel membranes, IR laser excitation and 3D picture generation using upconverting nanoparticles, thermal conductivity measurements for small samples (laser flash method), XRD, XRF, cryoTEM, FE-SEM, IGC, SPR, QCM-D, biological testing.

Chemie nachwachsender Rohstoffe – Rosenau

Who are we?

Thomas Rosenau	thomas.rosenau@boku.ac.at
Hubert Hettegger	hubert.hettegger@boku.ac.at
Marco Beaumont	marco.beaumont@boku.ac.at
Vebi Mimini	vebi.mimini@boku.ac.at
Oliver Musl	oliver.musl@boku.ac.at
Sara Zaccaron	sara.zaccaron@boku.ac.at

Biopolymer- und Papieranalytik – Potthast

Who are we?

Antje Potthast	antje.potthast@boku.ac.at
Irina Sulaeva	irina.sulaeva@boku.ac.at
Grigory Zinovyev	grigory.zinovyev@boku.ac.at

Biopolymer Material Chemistry Group – Liebner

Who are we?

Falk Liebner falk.liebner@boku.ac.at
Sven Plappert sven.plappert@boku.ac.at
Enkhjargal Budjav enkhjargal.budjav@boku.ac.at
Julien Jaxel julien.jaxel@boku.ac.at

Department für Nachhaltige Agrarsysteme

Institut für Landtechnik – Bauer

Who are we?

Alexander Bauer alexander.bauer@boku.ac.at
Iris Kral iris.kral@boku.ac.at
Maximilian Habl maximilian.habl@boku.ac.at
Javier Lizasoain javier.lizasoain@boku.ac.at

What do we do? Optimisation of energetic use of biomass; optimisation of the use of agricultural residues in biorefinery systems by means of pretreatment procedures; biomethane potentials; Application and development of modern sensor technologies and automatisation for agricultural machines and processes; criteria analyses of agricultural machinery, structures, production processes (e.g. of the efficiency of automated steering systems) and products, in collaboration with other researchers.

What can we offer? Determination of biomethane potential yields of organic residues; continuous anaerobic digestion processes; biomass characterization (e.g. water content by Karl Fischer titrator, volatile solids); degradation kinetics during anaerobic digestion processes; Online non-destructive analysis of agricultural raw materials (chemical constituents, moisture content and dry matter) for further processing using information and communication technologies (ICT); Life cycle assessment of agricultural machinery, technologies and products, as well as agricultural production systems, and farms (following the international standard ISO 14040 ff), Sustainability assessment as well as Carbon footprints of agricultural systems, Feasibility studies for farm development and regional rural development projects.

What would we need? Expertise on the creation of added value products (i.e. materials and chemicals) out of agricultural residues with a circular economy approach; Analysis of different chemical and physical parameters of agricultural products for the calibration of sensors; development/adaptation of suitable data interfaces and data structures; Potential collaborations to environmentally assess innovative technologies with a focus on agriculture, Input data (depending on the research question).

Department für Nanobiotechnologie

Biologisch Inspirierte Materialien – Reimhult

Who are we?

Erik Reimhult erik.reimhult@boku.ac.at
Ronald Zirbs ronald.zirbs@boku.ac.at
Martina Schroffenegger martina.schroffenegger@boku.ac.at

What do we do? Development of methods to study colloidal interactions and interfaces; nanoparticles (superparamagnetic iron oxide, quantum dots, noble metal); polymer grafted nano- and microparticles; colloid and molecular assembly; nanoparticle-based smart materials; nanoscale polymer brush morphology; nanocapsules (drug delivery vehicles: liposomes, block copolymersomes, hybrid vesicles); bacteria-interface interactions; early biofilm formation; cell interaction with model membranes; molecular binding and insertion into lipid membranes; polymer functionalized nanopores; nanopatterned biosensors.

What can we offer? Polymer and nanoparticle synthesis and characterization: GPC, TGA/DSC, ATR-FTIR, DLS, Nanosight, zeta potential; transmission (200kV) and environmental scanning electron microscopy, freeze-fracture-etching and thin-section preparations; biointerface characterization lab: QCM-D, SPR, DPI, ellipsometry/interferometry, waveguide spectroscopy and microscopy, AFM, confocal and super-resolution microscopy, phase-contrast holography, flow cytometry, SL2 microbiology laboratories, cell culture laboratory, molecular biology lab, microfluidics.

What would we need? Cryo-TEM/SEM, XRD, XPS, magnetometry, ICP-MS.

Institut für Holztechnologie & Nachwachsende Rohstoffe / Wood Kplus

Naturfaserwerkstoffe – Gindl-Altmutter

Who are we?

Wolfgang Gindl-Altmutter	wolfgang.gindl-altmutter@boku.ac.at
Stefan Veigel	stefan.veigel@boku.ac.at
Maria Busquets-Ferrer	maria.busquets-ferrer@boku.ac.at
Ivana Czabany	ivana.czabany@boku.ac.at
Tatjana Gvozdenovic	tatjana.gvozdenovic@students.boku.ac.at
Yasmin Khorramdel	yasmin.khorramdel@boku.ac.at
Janea Köhnke	janea.koehnke@boku.ac.at
Eva-Marieke Lems	eva.lems@boku.ac.at
Christian Pfeffer	c.pfeffer@kplus-wood.at
Stefan Pinkl	s.pinkl@kplus-wood.at
Benjamin Arminger	b.arminger@kplus-wood.at
Armin Winter	armin.winter@boku.ac.at

What do we do? Bio-based fibre materials (incl. wood, natural fibres and alternative fibre sources like e.g. fibrous by-products of sugar and starch industry, papermaking fines, coffee silver skins, etc.); advanced wood/cellulose materials (binderless fibre board, cellulose-based foams, improvements in particle board and fibre board production); nanocellulose (alternative resources, characterisation, application in wood industry); coatings and functionalized wood surfaces (hydrophobisation, improvement of UV-stability, etc.).

What can we offer? Disintegration in lab and workshop scale (milling, beating, refining, grinding, high pressure homogenization, ultrasonication); Drying (vacuum-, freeze- and spray drying); Microscopy (light, fluorescence, AFM); Mechanical characterisation (loads up to 100 kN, video and laser extensometer, laser speckle pattern interferometry, testing at elevated temperatures, impact tests, etc.); Thermoanalytics (TGA, DSC and DMA); Wetting properties (static and dynamic contact angle, also with polymer melts, surface tension, surface free energy, etc.); Rheology; Processing of natural

fibres (scutching, hackling, carding, needle punching) and composite preparation; Lab scale preparation of paper and wood based panels.

What would we need? SEM/TEM, IGC, Sugar analytics, Molecular weight of polysaccharides, Particle size distribution (Fiber Tester), XRD.

Holztechnologie – Müller

Who are we?

Ulrich Müller ulrich.mueller@boku.ac.at
Cedou Kumpenza cedou.kumpenza@boku.ac.at

Verklebung und Oberflächencharakterisierung – Herwijnen/Konnerth

Who are we?

Erik van Herwijnen e.herwijnen@kplus-wood.at
Johannes Konnerth johannes.konnerth@boku.ac.at
Pia Solt p.solt@kplus-wood.at
Claudia Gusenbauer claudia.gusenbauer@boku.ac.at
Jérôme Colson jerome.colson@boku.ac.at

What do we do? Synthetic and renewable based adhesives for wood materials application: synthesis, modification, characterization; adhesion mechanisms, wetting, mechanics of adhesives, processing of adhesives, adherent surfaces.

What can we offer? Mechanical characterization (macro to nano scale, universal testing machines, nanoindentation), TGA, DSC, STA, DMA, contact angle, tensiometer, atomic force microscopy (including mechanical/physical/chemical/thermal surface properties), microsopic analysis, measurement of bonding strength, rheology.

What would we need? Flammability tests, Determination of free monomers.

Resource Efficient Materials (REM) Group, Institut für Naturstofftechnik – Wimmer

Who are we?

Rupert Wimmer Rupert.Wimmer@boku.ac.at
Christian Weichhart Christian.Weichhart@boku.ac.at
Roman Myna Roman.Myna@boku.ac.at
Simon Dankelmaier

What do we do? Natural material technology, resource-efficient materials, wood-based panels, packaging and insulation materials, environmental protection in the wood industry.

What can we offer? polymer processing (extrusion, injection molding, material preparation, 3D printing); various polymer characterization, thermal analysis; dynamic-vapor sorption analysis.

What would we need? project partnerships in natural material developments, including resource efficiency criteria; expertise in foaming technology; particle physics expertise.

Institut für Physik und Materialwissenschaft (IPM)

Bioinspirierte Materialien – Lichtenegger/Mayer

Who are we?

Helga Lichtenegger	helga.lichtenegger@boku.ac.at
Herwig Mayer	herwig.mayer@boku.ac.at
Harald Rennhofer	harald.rennhofer@boku.ac.at
Gerald Singer	gerald.singer@boku.ac.at
Gerhard Sinn	gerhard.sinn@boku.ac.at
Noemi Frisina	noemi.frisina@boku.ac.at
Philipp Siedlaczek	philipp.siedlaczek@boku.ac.at
Ulrike Karr	ulrike.karr@boku.ac.at

What do we do? Carbon fiber composites, plant cell wall nanostructure, particle filled polymers, biomineralization, very high cycle fatigue of metals and polymer based composites, nanostructure characterization with x-ray methods, correlation nanostructure – macroscopic mechanical properties.

What can we offer? Environmental electron microscopy, element analysis, nanostructure determination by small-angle x-ray scattering (particles, composites, systems in solution, amorphous materials etc.), crystallinity, mechanical testing (stiffness, strength, toughness), fatigue testing up to the very high cycle range.

What would we need? Orientation of CNT in polymer matrices (e.g. by polarized Raman), FTIR analysis on epoxy curing, defined GFK or CFK materials (samples of material actually used in components), partner interested in fatigue properties, NP functionalization, HR-TEM, molecular and micromechanical simulation.

TU WIEN

Institut für Angewandte Synthesechemie

Fachbereich Makromolekulare Chemie – Liska/Knaus

Who are we?

Robert Liska	robert.liska@tuwien.ac.at
Simone Knaus	simone.knaus@tuwien.ac.at
Stefan Baudis	stefan.baudis@tuwien.ac.at
Christian Gorsche	christian.gorsche@tuwien.ac.at
Davide Ret	davide.ret@tuwien.ac.at
Markus Kury	Markus.Kury@tuwien.ac.at
Markus Lunzer	Markus.Lunzer@tuwien.ac.at
Katharina Ehrmann	Katharina.Ehrmann@tuwien.ac.at
Sascha Stanic	Sascha.Stanic@tuwien.ac.at
Elise Zerobin	Elise.Zerobin@tuwien.ac.at
Raffael Reichsöllner	Raffael.Reichsoellner@tuwien.ac.at
Patrick Steinbauer	Patrick.Steinbauer@tuwien.ac.at
Sandra Orman	Sandra.Orman@tuwien.ac.at

Johannes Steindl Johannes.Steindl@tuwien.ac.at
Olga Liske Olga.Liske@tuwien.ac.at
Stefan Helfert Stefan.Helfert@tuwien.ac.at
Ching-Chung Huang Ching-Chung.Huang@tuwien.ac.at
Sarah Keck Sarah.Keck@tuwien.ac.at
Andreas Hofecker Andreas.Hofecker@tuwien.ac.at
Yazgan Mete Yazgan.Mete@tuwien.ac.at
Anh-Dung Tran Anh-Dung.Tran@tuwien.ac.at
Nicolas Klikovits Nicolas.Klikovits@tuwien.ac.at

What do we do? Preparative chemistry: synthesis of monomers/polymers, modification of polymers, functional polymers; advanced photopolymerization/photocrosslinking techniques: photoinitiator development, analysis of photoproducts, 3D printing (lithography-based additive manufacturing techniques), multi-photon-polymerization, polymer network modifier development, toughening of polymer networks; biomaterials development and processing: biocompatible/biodegradable monomers/polymers, dental materials, tissue substitute materials (bone, blood vessel), hydrogels, biointerfaces; renewable materials development: biogene polymers (cellulose, starch, hyaluronan, lignin, gelatine/collagen); advanced polymerization techniques: polyaddition reactions (polyurethanes), frontal polymerization, cationic polymerization, controlled radical polymerization (RAFT).

What can we offer? Synthesis, polymer characterization, spectroscopic methods (NMR, LC-NMR, UV-Vis, ATR, RT-FTIR), chromatographic methods (GC, HPLC, GPC), light scattering methods (SLS, DLS), thermal analysis (DSC, TGA, STA), rheology, contact angle measurement (static/dynamic), UV/Vis curing devices (Spotcure broadband/filter/LED, UV reactors/ovens), photoDSC, photorheology/RT-FTIR.

What would we need? Diploma students, PhD students, advanced surface characterization methods (e.g. XPS), inverse GC/HPLC, multi-phase analysis (staining techniques), environmental-SEM, modelling.

Institut für Materialchemie

UnterlassLab – Advanced Organic Materials – Unterlass

Who are we?

Miriam Unterlass miriam.unterlass@tuwien.ac.at
Tobia Cavalli tobia.cavalli@tuwien.ac.at
Michael Taubländer michael.taublaender@tuwien.ac.at
Daniel Alonso Cerron-Infantes daniel.cerron.infantes@tuwien.ac.at
Lukas Leimhofer lukas.leimhofer@hotmail.com
Manuel Reiter manuel.reiter@me.com
Elias K. Bumbaris elias.bumbaris@tuwien.ac.at
Lukas Leutgeb lukas.p.leutgeb@gmail.com
Miriam Zintl zintl.miriam@gmail.com
Barbara Osinger barbaraosinger@hotmail.com

What do we do? N-heterocycle-based materials; High-performance polymers; Organic dyes and pigments; Crystalline polymers; Hydrothermal Polymerization; Solid-state Polymerization; Crystal engineering; Crystal growth; Polymer morphology.

What can we offer? Powder X-Ray diffraction (PXRD) including high-termperature PXRD; Analyses of intermolecular interactions; In-situ ATR-FT-IR; Morphology studies via electron and optical microscopy; Crystal growth; Solid-state synthesis; Hydrothermal syntheses.

What would we need? Dielectric spectroscopy; AFM; Thin film analysis; Conductivity measurements; High resolution mass spectrometry; Accelerated aging and chemical resistance tests.

Institut für Theoretische Physik

Soft Matter Theory – Kahl

Who are we?

Gerhard Kahl	gerhard.kahl@tuwien.ac.at
David Toneian	david@toneian.com
Clemens Jochum	c.jochum@gmail.com

What do we do? (i) Structure, thermodynamics (phase behaviour) of a wide range of colloidal particles (in particuilar magnetically functionalised star-polymers, DNA-based dendrimers, etc.), sometimes including out-of-equilibrium properties, (ii) properties of cluster-forming of ultra-soft particles, patchy particles, anisotropic particles (both in two and three dimensions).

What can we offer? A broad variety of computational methods: Monte Carlo and Molecular Dynamics simulations (in- and out-of-equilibrium), classical density functional theory, highly specialized optimization techniques (based on evolutionary algorithms).

What would we need? Close cooperation with experiment, possibly experimental realizations of our simulated systems.

Institut für Werkstoffwissenschaften und Werkstofftechnologie

Forschungsbereich Polymer- und Verbundwerkstoffe – Stampfl

Who are we?

Jürgen Stampfl	juergen.stampfl@tuwien.ac.at
Aleksandr Ovsianikov	aleksandr.ovsianikov@tuwien.ac.at
Christoph Hofstetter	christoph.hofstetter@tuwien.ac.at
Sonja Baumgartner	sonja.baumgartner@tuwien.ac.at
Wolfgang Steiger	wolfgang.steiger@tuwien.ac.at

What do we do? Research and development in lithography based additive manufacturing, with a focus on materials and AM systems.

What can we offer? Materials development and characterization, system design in stereolithography and multi-photon lithography. Screening of photopolymers. Cell culture experiments.

What would we need? Ideas for innovative applications.

Structural Polymers – Archodoulaki

Who are we?

Wilma Archodoulaki	vasiliki-maria.archodoulaki@tuwien.ac.at
Panaitescu Ileana	ileana.panaitescu@tuwien.ac.at
Karaagac Erdal	erdal.karaagac@tuwien.ac.at
Stanic Sascha Daniel	sascha.stanic@tuwien.ac.at

What do we do? Polymers, Materials Selection, Recycling, testing of materials and components, Life Time Prediction.

What can we offer? Extrusion, Material and component properties, aging know-how.

What would we need? Recycling-cooperation, LCA.

UNIVERSITÄT WIEN

Fakultät für Chemie

Mikroanalytisches Laboratorium – Theiner

Who are we?

Johannes Theiner	johannes.theiner@univie.ac.at
Jürgen Bach	juergen.bach@univie.ac.at
Sophia Hagen	sophia.hagen@univie.ac.at
Christina Rinne	christina.rinne@univie.ac.at

What do we do? Elemental Analysis, FT-IR.

Fakultät für Physik

Physik Nanostrukturierter Materialien – Zehetbauer

Who are we?

Michael Zehetbauer	michael.zehetbauer@univie.ac.at
Mohammad Zareghomsheh	mohammad.zareghomsheh@univie.ac.at
Sebastian Wasylewski	sebastian.wasylewski@hotmail.com

What do we do? Mechanical Properties of Polymers, Connection between Micro/Nanostructure and mechanical properties with special regard of crystal defects such as dislocations and dislocation arrangements, high pressure crystallization.

What can we offer? X-ray Bragg Profile Analysis (XPA) for dislocation characterisation and lamella size measurement, XPA in-situ investigation (deformation and temperature) by means of Synchrotron experiments, DSC especially for determination of lamella size distribution, Flash-DSC, X-ray texture and SAXS investigations, nanoindentation including Young's modulus measurement, mechanical strength measurements including cyclic deformation, DMA in torsion for phase transition and defect analyses.

What would we need? DMA in tension/compression and bending, environmental TEM techniques and cryo-microtom methods.

Physics of Functional Materials – Schranz

Who are we?

Wilfried Schranz wilfried.schranz@univie.ac.at
Viktor Soprunyuk viktor.soprunyuk@univie.ac.at

What can we offer? Thermal expansion measurements (−150°C to +800°C), Dynamic Mechanical, Analysis (-150°C to +600°C) in frequency range 0.1 to 100 Hz, dielectric permittivity measurements (-150°C to +500°C, f = 10 Hz to 10 MHz).

What would we need? polymer samples.

Theorie & Simulation weicher Materie – Likos

Who are we?

Christos Likos christos.likos@univie.ac.at
Martin Jehser martin.jehser@univie.ac.at
Lisa Weiss lisa.weiss@univie.ac.at
Maximilian Liebetreu maximilian.liebetreu@univie.ac.at
Iurii Chubak iurii.chubak@univie.ac.at
Ioana Cristina Garlea ioana.cristina.garlea@univie.ac.at
Emanuele Locatelli emanuele.locatelli@univie.ac.at
Natasa Adzic natasa.adzic@univie.ac.at

What do we do? Theoretical and numerical investigations of structure, dynamics and self-assembly of polymeric systems.

What can we offer? Insight/Understanding of the physical mechanisms behind characteristics of the behaviour of polymeric systems.

What would we need? Possible experimental collaborators, Long term vision: to form a Vienna Polymer/Soft Matter community.

Institut für Materialchemie und Forschung

Polymer and Composite Engineering group – Bismarck

Who are we?

Alexander Bismarck alexander.bismarck@univie.ac.at
Menner Angelika angelika.menner@univie.ac.at
Hans Werner Müller hans.werner.mueller@univie.ac.at
Andreas Mautner andreas.mautner@univie.ac.at
Patrick Steindl patrick.steindl@univie.ac.at
Dmitrii Rusakov dmitrii.rusakov@univie.ac.at
Petr Khakhulin petr.kha@gmail.com
Mohammad Jalalian mohammad.jalalian@univie.ac.at
Florian Mayer f.mayer@univie.ac.at
Kathrin Weiland a01468290@unet.univie.ac.at
Marta Fortea Verdejo marta.forteaverdejo@univie.ac.at
Paschinger Werner werner.paschinger@univie.ac.at

Jiang Qixiang	qixiang.jiang@univie.ac.at
Hande Barkan-Öztürk	hande.barkan@univie.ac.at
Gregor Brunner	a08925815@unet.univie.ac.at
Nadine Barna	nadine.barna@univie.ac.at
Amy Ho	amy.ho@gmx.net
Neptun Yousefi	neptun.yousefi@univie.ac.at
Mitchell Jones	mitchell.jones@student.rmit.edu.au
Thu Hoai Maria Nguyen	thu.hoai.maria@gmail.com
Manuel Holzmann	a01406632@unet.univie.ac.at
Beatrice Giaier	a1346117@unet.univie.ac.at
Patricia Ulm	patriciaulm@a1.net
Emina Muratspahic	emina.muratspahic@univie.ac.at
Jan Janesch	jan.janesch@gmx.at
Stefan Sattler	stefan.p.sattler@gmx.at
Kayne Suzanne P. Alvim	suzannealvim@gmail.com
Seohee Son	radson20167890@gmail.com

What do we do? Natural fibre composites, carbon fibre composites, drag reduction, nanocellulose (membranes, composites, new resources), polymer foams (polyHIPEs, froths), liquid/viscose 3D-printing.

What can we offer? Surface analytics (surface energy: iGC, dynamic contact angle; surface tension = f(T, p)), water sorption (DVS), GPC (org. & aqu.), permeability (OTR/WVTR, gas (Darcy) permeability, water permeance), particle size measurement, foam structure analyser, density/porosity/surface area, Zeta-potential, mechanical testing, TGA-IR, high-T hot-press.

What would we need? Sugar analysis, molecular weight of polysaccharides, gas analysis, biodegradability/composting, flammability, thermal conductivity, cryo-TEM, nES-GEMMA.

Poster

1 *Fire tests for plastic materials.*
Dieter Hohenwarter.
Versuchsanstalt (Kunststoffprüfung), TGM

2 *Biodegradable Thermoplastic Polyurethane Polymers for their Application as Electrospun Artificial Blood Vessels*.
K. Ehrmann, C. Dworak, K. Seidler, P. Potzmann, C. Grasl, H. Bergmeister, S. Baudis, B. Podesser, R. Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

3 *Conformal ultrathin coating by $scCO_2$-mediated PMMA deposition: A facile approach to add moisture resistance to lightweigth ordered nanocellulose aerogels.*
S. Plappert, S. Quraishi, J.-M. Nedelec, J. Konnerth, H. Rennhofer, H. Lichtenegger, F. Liebner.
BMC Biopolymer Material Chemistry Group, Chemie nachwachsender Rohstoffe, BOKU

4 *Green One-Pot Synthesis and Processing of Polyimide-Silica Hybrid Materials*.
L. Leimhofer, M. M. Unterlass.
UnterlassLab – Advanced Organic Materials, Institut für Materialchemie, TU Wien

5 *Lignin-based carbon particles*.
Janea Köhnke.
Naturfaserwerkstoffe, BOKU

6 *Aging of glass fiber/polyurethane composites.*
Ileana Panaitescu.
Structural Polymers, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

7 *Highly Filled Hydrogels As Biocomposites And Ceramic Precursors For 3D Printing Applications*.
S. Stanic, A. Alpay Altun, D. Reichartzeder, M. Schwentenwein, S. Baudis, J. Stampfl, R.Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

8 *Core-shell Ironoxide Nanoparticles.*
Martina Schroffenegger.
Institut für Biologisch inspirierte Materialien, BOKU

9 *Corn stover for biogas production: effect of pretreatment on the gas yields and on the biodegradation kinetics of structural compounds.*
J. Lizasoain, I. Kral, A. Gronauer, A. Bauer.
Institut für Landtechnik, Department für Nachhaltige Agrarsysteme, BOKU

10 *Novel, Bio-Compatible Peptide-Conjugates for Hemostasis*.
R. Reichsoellner, X.-H. Qin, K. Labuda, J. Chen, V. Hruschka, A. Khadem, S. Baudis, R. Liska, H. Redl, P. Slezak.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

11 *Cellulose as carrier material for up-converting nanoparticles in static true volumetric displays: achievements, challenges and prospects.*
F. Liebner, S. Plappert, S. Quraishi.
BMC Biopolymer Material Chemistry Group, Chemie nachwachsender Rohstoffe, BOKU

12 *Laser-based 3D Printing of Hydrogel Barrier Models for Microfluidic Applications.*
D. Mandt, P. Gruber, M. Markovic, M. Tromayer, M. Rothbauer, S. Kratz, J. Van Hoorick, P. Dubruel, S. Van Vlierberghe, P. Ertl, R. Liska, A. Ovsianikov.
Forschungsbereich Polymer- und Verbundwerkstoffe, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

13 *Phosphorus-Based RAFT Polymers For Bio Adhesion*.
P. Steinbauer, C. Dworak, S. Baudis, P. J. Thurner, O. Andreotis, R. Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

14 *Magnetically Functionalized Star Polymers: MPCD+MD Simulations in Flow.*
D. Toneian, R. Blaak, G. Kahl, C. N. Likos.
Soft Matter Theory, Institut für Theoretische Physik, Universität Wien

15 *Dyeing of solid wood using supercritical carbon dioxide as carrier.*
J. Jaxel, C. Hansmann, F. Liebner.
BMC Biopolymer Material Chemistry Group, Chemie nachwachsender Rohstoffe, BOKU

16 *Designing a topological filter – transport of linear and ring polymers in microfluidic channels.*
L. B. Weiss, A. Nikoubashman, C. N. Likos.
Theorie und Simulation der weichen Materie, Fakultät für Physik, Universität Wien

17 *Environmentally friendly functionalized thermoplastic starch for biopolymer applications.*
Barbara Fahrngruber.
Agrana Research & Innovation Center (ARIC)

18 *Hyaluronic acid as a basis for the development of hydrogel networks and Two-Photon Initiators*.
E. Zerobin, M. Tromayer, M. Markovic, W. Steiger, P. Gruber, J. Stampfl, A. Ovsianikov, S. Baudis, R. Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

19 *Different approaches to measure molar mass of technical lignins: SEC, AsFlFFF-MALLS and DOSY-NMR.*
I. Sulaeva, G. Zinovyev, I. Sumerskii, M. Bacher, U. Henniges, T. Rosenau, A. Potthast.
Biopolymer- und Papieranalytik, Chemie nachwachsender Rohstoffe, BOKU

20 *Conformation characteristics of DNA-based dendrimers.*
C. Jochum, N. Adžić, G. Kahl, C. N. Likos.
Soft Matter Theory. Institut für Theoretische Physik, Universität Wien

21 *Synthesis of Ammonium Carboxylate Monomer Salts and their Solid-State Polycondensation*.
E. K. Bumbaris, M. M. Unterlass.
UnterlassLab – Advanced Organic Materials, Institut für Materialchemie, TU Wien

22 *Properties of High-Pressure Crystallized Gamma-Polypropylene*.
Sebastian Wasylewski.
Physik Nanostrukturierter Materialien, Fakultät für Physik, Universität Wien

23 *SmartLi: Lignin modified wood adhesives.*
Pia Solt.
Gruppe Verklebung und Oberflächencharakterisierung, Institut für Holztechnologie und Nachwachsende Rohstoffe / Wood Kplus, BOKU

24 *Photorheometer with RT-FTIR Coupling as Innovative Tool to Assess Photopolymers for 3D Printing*.
S. Orman, C. Gorsche, C. Hofstetter, S. Baudis, J. Stampfl, R. Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

25 *Materials Testing at the Institute of Physics and Materials Science.*
G. Sinn, G. Singer, M. M. Unterlass, U. Windberger, J. Wendrinsky, H. Rennhofer, W. Stöger, K. H. Semlitsch, P. Sladicek, U. Karr, B. M. Schönbauer, D. Flore, K. Wegener, H. Mayer, H. Lichtenegger.
Bioinspirierte Materialien, Institut für Physik und Materialwissenschaft (IPM), BOKU

26 *Addition-fragmentation chain transfer agents for formation of tough photopolymer network in 3D printing application*.
G. Harakaly, M. Kury, C. Gorsche, K. Seidler, H. Reghunathan, P. Dorfinger, T. Koch, J. Stampfl, N. Moszner, R. Liska.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

27 *Freeze-dried MFC foams reinforced with poly furfuryl alcohol*.
Eva-Marieke Lems.
Naturfaserwerkstoffe, BOKU

28 *Biocompatible Micropatterning of o-Nitrobenzyl Crosslinked Hydrogels by Sensitized Two-Photon Cleavage*.
M. Lunzer, D. Ossipov, P. Gruber, K. Hölzl, M. Markovic, R. Liska, A. Ovsianikov.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

29 *Additive-assisted growth of monomer salt crystals*.
D. A. Cerron-Infantes, M. M. Unterlass.
UnterlassLab – Advanced Organic Materials, Institut für Materialchemie, TU Wien

30 *Green modification of a Cellulose II gel to tailor surface functionality and particle size.*
M. Beaumont, H. Hettegger, T. Nypelö, M. Opietnik, A. Potthast, T. Rosenau.
Chemie nachwachsender Rohstoffe, BOKU

31 *PP/PE Blends.*
Erdal Karaagac.
Structural Polymers, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

32 *Lithography-based Ceramic Manufacturing in Digital Dentistry*.
S. Baumgartner, J. Schönherr, A. Schedle, J. Stampfl.
Forschungsbereich Polymer- und Verbundwerkstoffe, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

33 *Compounding of biocidal agents*.
Ch. Fischer, S. Oberwalder.
LKT Laboratorium für Kunststofftechnik (F&E), TGM

34 *3D printing MFC-reinforced poly lactic acid*.
Armin Winter.
Naturfaserwerkstoffe, BOKU

35 *Silane-Ene-Chemistry: An approach towards regulated photopolymer networks*.
J. Steindl, T. Koch, N. Moszner, C. Gorsche.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

36 *From Rigid-Rod to Hairy-Rod Polyimides*.
M. J. Taublaender, M. Reiter, M. M. Unterlass.
UnterlassLab – Advanced Organic Materials, Institut für Materialchemie, TU Wien

37 *Toolless Manufacturing of Complex Structures*.
B.Busetti, B. Steyrer, J. Stampfl.
Forschungsbereich Polymer- und Verbundwerkstoffe, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

38 *Data acquisition of chemical composition during harvest process of raw material for direct and subsequent process optimization.*
M. Habl, N. Barta, A. Gronauer.
Institut für Landtechnik, Department für Nachhaltige Agrarsysteme, BOKU

39 *Fully Automated Z-Scan Setup based on an tunable FS-Oscillator.*
W. Steiger, P. Gruber, A. Dobos, M. Tromayer, M. Lunzer, R. Liska, A. Ovsianikov.
Forschungsbereich Polymer- und Verbundwerkstoffe, Institut für Werkstoffwissenschaft und Werkstofftechnologie, TU Wien

40 *Evaluating the Potential of Membrane Fractions and SEC of Kraft Lignins.*
G. Zinovyev, I. Sulaeva, I. Sumerskii, P. Korntner, T. Rosenau, A. Potthast.
Biopolymer- und Papieranalytik, Chemie nachwachsender Rohstoffe, BOKU

41 *Trefoil knot hydrodynamic delocalization on sheared ring polymers.*
M. Liebetreu, M. Ripoll, C. N. Likos.
Theorie und Simulation der weichen Materie, Fakultät für Physik, Universität Wien

42 *Wood Adhesives at Wood K plus and BOKU.*
E. v. Herwijnen, J. Konnerth, P. Solt, C. Gusenbauer, J. Colson.
Gruppe Verklebung und Oberflächencharakterisierung , Institut für Holztechnologie und Nachwachsende Rohstoffe / Wood Kplus, BOKU

43 *Materials Characterization at the Institute of Physics and Materials Science.*
H. Rennhofer, S. Plappert, S. Bernstorff, H. Lichtenegger, F. Liebner, N., Frisina, M. Schroffenegger, T. Grünewald, E. Reimhult.
Bioinspirierte Materialien, Institut für Physik und Materialwissenschaft (IPM), BOKU

44 *Investigations of the behaviour of supercooled water in nanopores and properties of polymers using Dynamic Mechanical Analizers*.
V. Soprunyuk, W. Schranz.
Physics of Functional Materials, Fakultät für Physik, Universität Wien

45 *Thermo-induced gelation of ligneous resole resins: An approach towards mesoporous monolithic aerogels and carbon aerogels.*
E. Budjav, A. Requejo-Silva, M. Ghorbani, J. Konnerth, F. Liebner.
BMC Biopolymer Material Chemistry Group, Chemie nachwachsender Rohstoffe, BOKU

46 *Renewable Energy and Sustainable development - „GREEN2GREEN" Rotor blade from hemp fiber reinforced Composites.*
A. Mahendran, G. Wuzella, St. Pichler, H. Lammer.
Naturfaserwerkstoffe, BOKU

47 *Understanding polymer degradation in pipe flows as first step in the evolution of drag reducing agents.*
E. Muratspahic, H. W. Müller, A. Bismarck.
Polymer and Composite Engineering groupm, Universität Wien

48 *UV-curable Materials from Tailored Lignin (Meth)acrylates.*
O. Liske, P. Dorfinger, R. Gmeiner, St. Baudis, J. Stampfl, R. Liska, S. Knaus.
Forschungsbereich Makromolekulare Chemie, Inst. f. Angewandte Synthesechemie, TU Wien

49 *Manufacturing Affordable Composites using Solid Epoxy Resins.*
N. Yousefi, H. A. Maples, Th. James, A. Bismarck.
Polymer and Composite Engineering group, Universität Wien