



# Service and Research Guide #1





# Potsdam Science Park

Potsdam Science Park is the largest and fastest growing location for research and innovation in the Federal State of Brandenburg – and is easily accessible from the German capital Berlin. More than 12,500 people conduct research, work and study here in the fields of biotechnology, medical technology, optics, geosciences, astro and gravitational physics, and other areas.

Leading research institutions such as the Max Planck and Fraunhofer Institutes, two faculties of the University of Potsdam, the Brandenburg Main State Archive and a continually growing number of companies and startups are jointly creating a campus of the future.

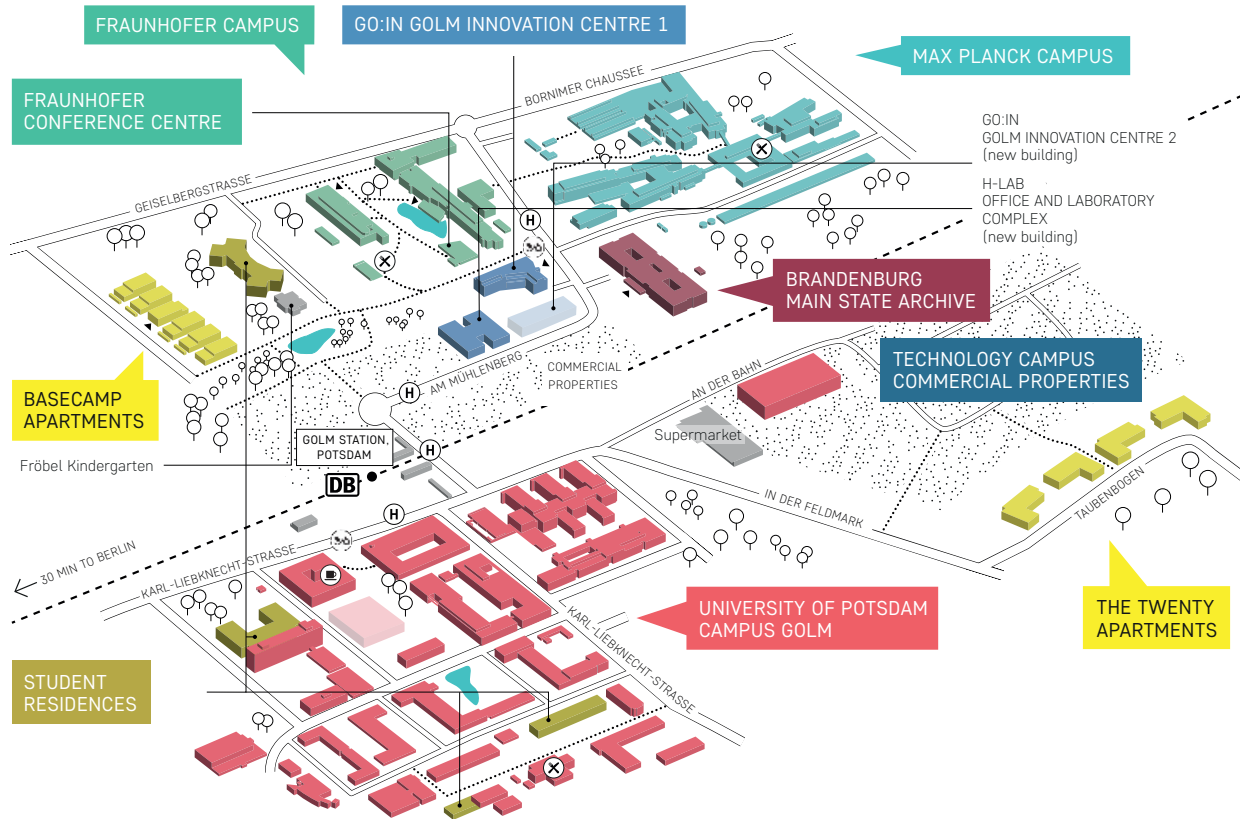
Encompassing an area of more than 50 hectares, the Potsdam Science Park offers development areas with first-class infrastructure in the German capital region.



-  9 min → Potsdam Central Station
- 30 min → Berlin City Centre
- 30 min → Airport Berlin Schönefeld (BER)
-  7 min → Leest A10 Motorway

# Potsdam Science Park

## Location Map



## **University of Potsdam, Campus Golm**

- Faculty of Human Sciences
- Faculty of Science

## **Max Planck Campus**

- Max Planck Institute for Gravitational Physics (Albert Einstein Institute) (MPI-AEI)
- Max Planck Institute of Colloids and Interfaces (MPICI)
- Max Planck Institute of Molecular Plant Physiology (MPI-MP)

## **Fraunhofer Campus**

- Fraunhofer Institute for Applied Polymer Research IAP
- Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB)

## **GO:IN Golm Innovation Centre 1 & 2**

- Companies and startups

## **Brandenburg Main State Archive**

- Memory of the state of Brandenburg

## **H-LAB Office and Laboratory Complex**

## **Technology Campus**

## **Accommodation**

- Student residences of the Studentenwerk Potsdam
- BaseCamp apartments
- The Twenty apartments

# Facts & Figures

**12,500**

Employees  
and Students



**2,700**

Scientists  
including

**450**

International  
Guest Researchers

**10<sup>+</sup>**

Coworking Spaces  
for startups

**145**

Professors

**30,000<sup>m<sup>2</sup></sup>**

Laboratory and  
Office Space for Rent

**7** ha  
Commercial  
Properties



**30<sup>+</sup>**

Companies  
and startups



**5**

Non-University  
Research Institutes

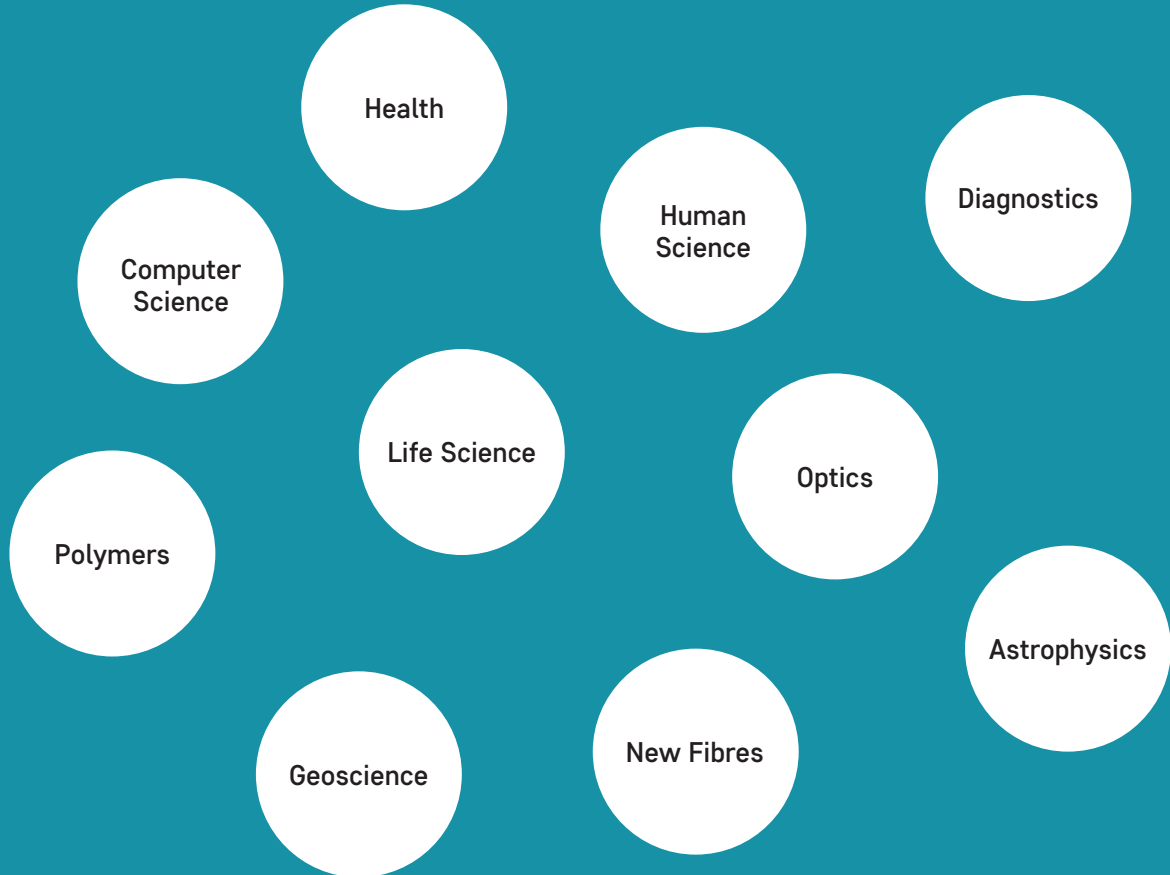
**2**

Faculties  
University of Potsdam  
Campus Golm

**1**

Brandenburg  
Main State Archive

# Areas of Research







# Science Park Management Standortmanagement Golm GmbH

The Standortmanagement Golm GmbH represents the common interest of the city of Potsdam and the University of Potsdam under the umbrella brand of Potsdam Science Park. We promote awareness of the park locally, nationally and internationally.

We also take care of all the people that work and live at the Potsdam Science Park. Whether you are in the process of founding a company or are looking for an office for your startup – the management team will help you along. Through our transfer services, we connect scientists with businesses and vice versa. Our Welcome Service supports you in gaining a foothold at the park and in the region as quickly as possible. If you have any questions concerning accommodation, childcare, healthcare, government agencies and all the other topics you have to manage when you move to another country – we are happy to welcome you!

[www.potsdam-sciencepark.de/en](http://www.potsdam-sciencepark.de/en)

## Services of the Science Park Management:

- Central information point
- Networking services
- Visitors services
- Startup Academy & Startup Space
- Welcome Service & Language School

To stay informed subscribe to our newsletter or follow us on Social Media:



Newsletter in German:

[www.potsdam-sciencepark.de/newsletter](http://www.potsdam-sciencepark.de/newsletter)



LinkedIn

[www.linkedin.com/company/potsdam-sciencepark](http://www.linkedin.com/company/potsdam-sciencepark)



Twitter

[www.twitter.com/potsdamscience](http://www.twitter.com/potsdamscience)



Facebook

[www.facebook.com/PotsdamSciencePark/](http://www.facebook.com/PotsdamSciencePark/)

»Talk to us about current rental opportunities and new building plots for research-based companies.«



# Find Space for Your Ideas

## Commercial Properties & Building Plots

Potsdam Science Park is the right location for the realization of your plans. The park encompasses 50 hectares and is growing quickly – we aim to attract 100 new companies and create more than 1,000 jobs in Potsdam-Golm over the next few years. We offer flexible office and laboratory space for rent at our commercial properties. Building plots can be acquired at the new TECHNOLOGY CAMPUS.

We work to strengthen the transfer of knowledge to a broader audience. We invite you to cooperate with our local research institutes and will support you in setting up operations at the Science Park. The Park provides an ideal ecosystem for innovative startup companies. Coworking and rental spaces are available at the GO:IN Golm Innovation Centre, where new companies benefit from an extensive network of funding institutions and research-related companies. With our Startup Academy, we offer helpful workshops and events to prepare scientists and entrepreneurs for the challenges, thrills and opportunities of realizing their ideas and setting up a new business.



»Studying with Profile  
and for the Future.«

With over 21,000 students and seven faculties, the University of Potsdam, founded in 1991, is the largest institution of higher education in Brandenburg. It is also the only institution training teachers in the state. Its research focuses on earth and environmental sciences, evolutionary and systems biology, cognitive sciences and data sciences. The university is closely interconnected with the research institutions in Potsdam and the region. Its consistent internationalization strategy contributes to making Potsdam an attractive location for young scientists from Germany and abroad.

The Faculty of Science is the largest of the seven faculties at the University of Potsdam. The majority of its departments are located in the Potsdam Science Park in Golm. The Faculty of Science maintains close collaborative relationships with extramural research institutions in the

Potsdam region in the form of joint professorships and numerous projects. Over 80 professors teach and research in the Faculty. They supervise almost 6,000 students and doctoral candidates.

The Faculty of Human Sciences is located at the Golm campus, too. The Faculty is divided into two structural units: Educational Sciences and Cognitive Sciences. Teaching is organized in five departments: Teacher Training, Educational Sciences, Psychology, Linguistics, and Sports and Health Sciences. 63 professors teach and research in the Faculty. Every year, about 4,500 students and doctoral candidates are trained, and the number is increasing.

1 SERVICES  
19-29

2 NANO / MOLECULAR  
33-51

3 MICRO / CELLULAR  
55-63

4 ORGANISM  
67-69

5 PROTOTYPING  
73-91

6 PRODUCTION  
95-99

7 COSMOS / QUANTUM  
103

# 1 SERVICES







»We want you to enjoy  
your time in Potsdam.«

# Welcome Service – Standortmanagement Golm GmbH

Should you need assistance settling down in this new environment at the Potsdam Science Park, the Welcome Service can provide a central point of contact for you, your partner or family, and your employer.

We can support you in learning the new language, socializing, and finding a new home.

## Our services include:

### Language School

- German and English courses (all levels)
- Stammtisch (regulars' table)

### Support

- Accommodation
- Childcare
- Insurances

- Health care
- Government agencies
- Career planning
- Loan desk

### Social Life

- International women's group
- Events
- Regular get-togethers

### MPI Guesthouse

- Short-term accommodation  
for up to 3 months



»Potsdam Transfer is your partner  
in all fields of knowledge and  
technology transfer!«

Potsdam Transfer is the central scientific institution for startups, innovation, and the transfer of knowledge and technology at the University of Potsdam. With its Transfer Service, Startup Service, the project Innovative University Potsdam and the Coordination Office for Continuing Education, Potsdam Transfer offers a holistic approach to support the transfer of research results into practice.

Experienced patent and trade fair services help scientists identify, evaluate, protect and promote the economic potential of their research results. Supporting the initiation of research and development projects between the university and businesses, Potsdam Transfer also serves as a contact point for representatives of regional and interregional companies.

The Potsdam Transfer Startup Service is the first point of contact for all members of the University of Potsdam on their way to realizing their startup ideas – from the concretization of the individual idea through to market entry.

Moreover, the university provides knowledge for a variety of stakeholders. For example, staff and management can gain qualifications in our extra-occupational Master of Business Administration programme.



»We offer individual and easy access to the diverse competencies and resources of the University of Potsdam.«

The Industrial and Economic Partnerships strengthen the cooperation between the University and the regional economy, offering companies and public institutions the opportunity to present themselves as attractive employers through an association with the University of Potsdam. By encouraging these partnerships, we boost Brandenburg's regional economy through the retention and recruitment of skilled workers and by creating an innovative network between industry and science.

We tailor our multi-faceted offerings to your individual needs. As a partner, you have numerous opportunities to present yourself as an attractive employer and can utilize various recruiting networks to meet your personnel requirements. In addition, the partnership offers you cost advantages in the areas of personnel development, consulting services and event management, including MBA courses, negotiation training or free consultancy services run by student projects.

## Services

- Employer branding
- Recruiting
- Transfer of knowledge
- Personnel development and management consulting
- Networking
- Event management

It starts now.

## InnovationTalk

### Moderation:

Prof. Dr. Uta Herbst, Projektleiterin und Direktorin von Potsdam

### Gäste:

Madeleine Wolf, Startup visionYOU

Prof. Dr. Nadine Spörer, Bildungscampus

Prof. Dr. Hans-Gerd Löhmannsröben, Technologiecampus

Prof. Dr. Alexander Böker, Fraunhofer IAP

Prof. Dr. Dieter Wagner, Gesellschaftscampus

»We foster co-creation and innovation at the University of Potsdam.«



The University of Potsdam and the Fraunhofer Institute for Applied Polymer Research (IAP) have strengthened their ambitions and activities in knowledge transfer and cross-disciplinary innovation. By forging new alliances with academia, industry, society and politics, we create innovative exchanges and long-lasting impact between research and application. We leverage and accelerate knowledge creation, technology transfer, and innovation through:

- The »Technology Campus«, where we set-up joint-labs based on co-creation and open innovation in science in close cooperation with the High Performance Centre »Integration of Biological and Physical-Chemical Material Functions«

- The »Bildungscampus«, where we cooperate with schools and school authorities on digital learning tools and the future of schooling based on cognitive and educational research
- The »Gesellschaftscampus«, where we exchange fact-based knowledge and increase citizens' participation in science

Inno-UP is coordinated by Potsdam Transfer and is part of the BMBF-initiative »Innovative Hochschule«, which is funded by the German federal and state governments.

## Services

- Innovative workshops, events and tours for different stakeholders
- Access to experimental labs, experts, projects and methods
- Development of project ideas

»We create opportunities for students to orient themselves and get in touch with companies and organizations to find their individual career paths.«



The Career Service supports students and alumni in finding and reaching their professional goals. Offerings include workshops and seminars, application tips, informational websites and individual counselling sessions for students to assess, and improve individual skills.

Other programmes create opportunities for students to get in touch with employers from regional companies and organizations:

## Programmes

- Job portal to advertise vacant positions and internships
- Open talents online community on XING and LinkedIn
- Meet-and-greet events with students and alumni
- Matching Day for students to meet face-to-face with employers
- Exchange day for students to gain insights into working life
- Career field webpage with different professions and testimonials
- Mentoring Plus for female students to team up with professionals



»We offer cooperations tailor-made for individual customer requirements to transfer the latest research results.«

The UP Transfer GmbH was founded by the University of Potsdam and four other shareholders in 1998 as a private non-profit enterprise. The main task of the company is to organize a modern and competitive knowledge and technology transfer at the University of Potsdam as well as in the region, but also on a national and international scale. The goal is to effectively increase the excellence in research and teaching by a professional transfer of results from science and research.

Various offerings are developed and realized in the fields of science, research, teaching, education and further education, tailor-made according to the different requirements of the customers.

## Services

- Master's degree programmes in the areas of Public Administration and Private Management, certificate courses in Mediation
- State-approved training  
»Psychological Psychotherapy«
- Scientific training courses and international projects in further education
- Applied research and development / contract research
- Scientific and technical consulting and services
- Conference services, mainly for scientific events

2

NANO /  
MOLECULAR

Bioanalytics	33
Assay Development	35
Surface Modifications	37
Synthesis and Modification of Polymers and Nanoparticles	39
Analysis and Characterization of Polymers	41
Cryo-Electron Microscopy Facility	43
Innovation Center innoFSPEC Potsdam	45
Max Planck Institute of Colloids and Interfaces	47
PDW Analytics GmbH	49
Rodos Biotarget GmbH	51



»We optimize your analytical processes  
and find the appropriate analytical  
method.«



## Services

At the Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB) we focus on molecular bioanalytics as well as large parts of chemical and process analytics. With our developments we cover the entire analytical process: from sample preparation to the selection of the appropriate analytical method to data collection and interpretation of results. All biologically relevant molecules can be the starting point for the analyses: DNA oligomers, PCR products, cells, aptamers, RNA, peptides, antibodies and other proteins and all kinds of »small molecules«.

## Equipment & Methods

- Kinetics & affinity measurements
- Calorimetry
- HPLC and mass spectrometry
- Sequencing facility
- Chip-based microfluidics for cell handling
- Handling, dispensing and spotting of liquids and biological samples
- Pharmacological characterization and modification of membrane proteins, multimeric proteins, protein labeling and functional characterization
- Functional characterization of cellular properties
- Fully equipped S1 and S2 cell culture and molecular biological laboratories
- Facility »Assay Development«

»At Fraunhofer IZI-BB we cover the entire value chain for assay development and assay adaption with a focus on agriculture, environmental research and medicine.«



## Services

Researchers and engineers at the Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB) design, develop and adapt assays along the entire value chain with a focus on agriculture, environmental research and medicine. Our repertoire encompasses assay formats like microarrays, ELISA, lateral flow and swab tests, and PCR tests and their miniaturization. The Fraunhofer IZI-BB develops Point-of-Care Diagnostics and works on the identification and characterization of binding molecules, such as, for example, aptamers.

## Equipment & Methods

- Rapid testing systems
- Lyophilization of immunoassays using smart dry reagents and optimization of packaging
- Hemocompatibility testing systems
- S1 and S2 cell culture laboratories
- Molecular biological and electrochemical laboratories
- Microarray facility
- In vitro diagnostics platform
- Facility »Automation and Miniaturization«



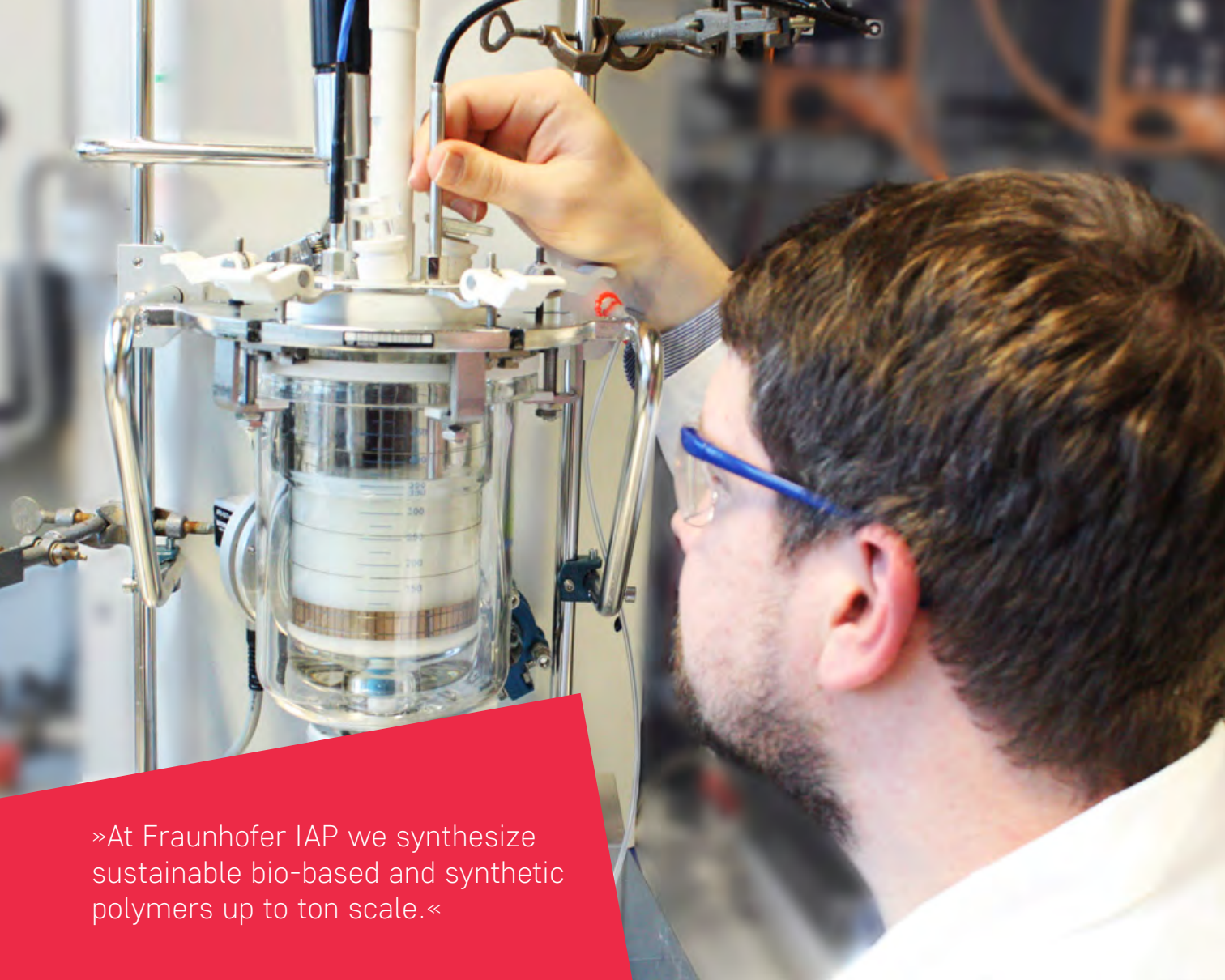
»We improve the biocompatibility  
of synthetic surfaces.«

## Services

The Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB) offers a broad range of functionalized surfaces for biotechnology, the food industry and medical technology. Researchers at the institute have a strong expertise in the fabrication of stimuli-responsive and functional surfaces as well as biocidal surfaces. We make use of polymers and molecularly imprinted polymers (MIPs) for coatings and customized patterning.

## Equipment & Methods

- S1 and S2 cell culture laboratories
- Molecular biological laboratories
- Coating methods like spin-coating, spray coating, spotting, printing, plasma treatment, ultra-thin metal coatings
- Surface characterization methods like ellipsometry, surface plasmon resonance and fluorescence-based determination



»At Fraunhofer IAP we synthesize sustainable bio-based and synthetic polymers up to ton scale.«

# Synthesis and Modification of Polymers and Nanoparticles – Fraunhofer IAP

39

At the Fraunhofer Institute for Applied Polymer Research IAP we develop biobased and synthetic polymers that meet the growing demands of our partners. The end products are becoming more durable and stable, more acid and heat resistant, easier to care for, healthier, more environmentally-friendly, more cost-effective as well as easier and more energy efficient to manufacture.

Application areas: plastics industry, lightweight construction, aerospace, automotive, electronics, optics, security technology, energy technology, textile industry, packaging, environmental and waste water technology, paper, construction and paint industries, medicine, pharmacy, cosmetics, biotechnology.

## Services

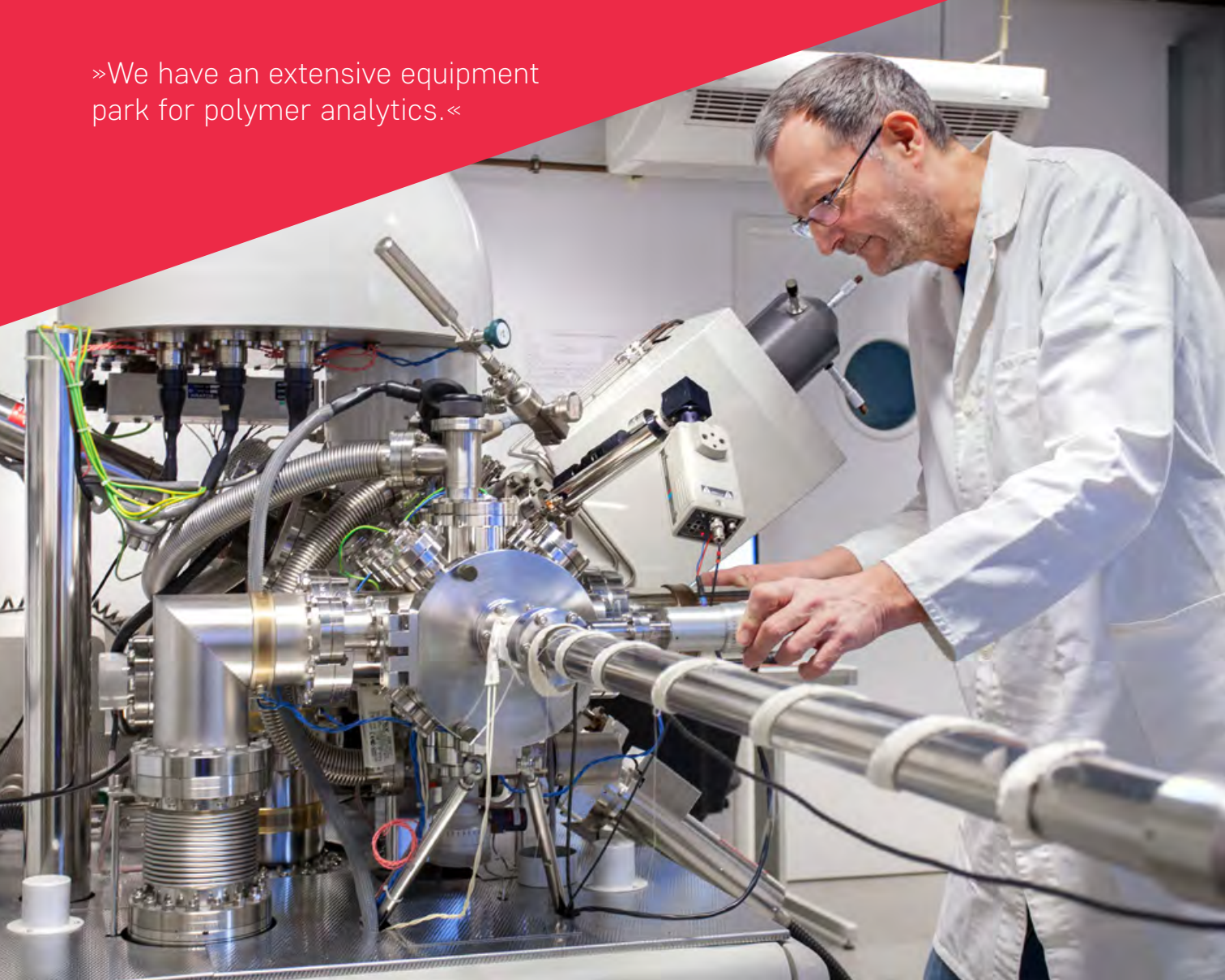
- Biopolymers and synthetic polymers
- Polymers from renewable raw materials

- Chemical modification of biopolymers
- Optically and electrically active polymers
- Quantum dots, nanoparticles, colloids, microcapsules
- Dispersions, hydrogels, surfactants
- Chromogenic polymers
- Development of polymerization techniques
- Process development

## Equipment & Methods

- Broad variety of polymerization techniques
- Pilot plant for polymer synthesis (up to ton scale)
- Mini plant for PLA synthesis (up to 20 kg per day)
- Kneader technologies for highly viscous systems
- Process analysis (in-line / off-line)
- Equipment for nanoparticle synthesis

»We have an extensive equipment park for polymer analytics.«





At the Fraunhofer Institute for Applied Polymer Research IAP we have an extensive modern equipment park for a wide range of analytical methods for polymers. It enables process control, material testing and routine analysis, but also allows the elucidation of chemical and physical structures or the investigation of the properties of polymers.

## Services

- Analysis of polymers and particulate systems
- Identification and characterization of polymers in solution
- Determination of chemical composition
- Characterization of material properties
- Structure-property relationship

## Equipment & Methods

- Air-conditioned mechanical test laboratory
- Scattering and diffraction methods
- Morphology and structure determination
- Surface analysis, elementary analysis
- Thermal analysis, rheology
- Chromatography, solution characterization
- Spectroscopy, microscopy
- Molecular and colloid-chemical characterization
- Molecular biological, biochemical, microbiological and cell biological test methods
- Hair analysis

»We offer expertise in protein structure determination using single particle cryo-electron microscopy.«



# Cryo-Electron Microscopy Facility – University of Potsdam

43

## Services

The cryo-electron microscopy (EM) facility of the University of Potsdam provides know-how and state-of-the-art equipment for structural studies on protein complexes and cell sections. We can perform screening experiments for negative stain and cryo-EM grid preparations, and optimize the results so that the grids can be used for high-resolution data collection. Structure determination of single particle protein complexes with molecular weights above 300 kDa can be done at low resolution (10 Å). We can also screen for protein aggregation, sample dispersion and protein complex formation. The long duration dewar and Elsa™ cryo-transfer holder allow data collection of up to 8h without needing to refill the liquid nitrogen.

## Equipment & Methods

- Thermo Fisher Talos F200C G2 equipped with a speed enhanced Ceta 16M camera and long duration dewar
- Software: TIA, EPU, Velox
- Elsa™ cryo-transfer holder model 698
- Leica GP2 plunger
- Diener electronic oil-free glow-discharger



»Your partner for interdisciplinary research and innovation in the field of photonics, sensing and material science.«

## Services

How can we understand small molecules and large galaxies – and what can we learn about them? innoFSPEC Potsdam uses photonics, with a focus on optical fibres and a creative combination of astrophysics and physical chemistry. For more than 10 years, innoFSPEC research groups have not only been developing new methods and technologies, but have also transferred them into practical applications together with various partners.

## Equipment & Methods

Our infrastructure includes state-of-the-art high-tech instrumentation and diverse laboratory equipment. We apply methods in the field of multimodal spectroscopy, optical sensing and imaging, for example:

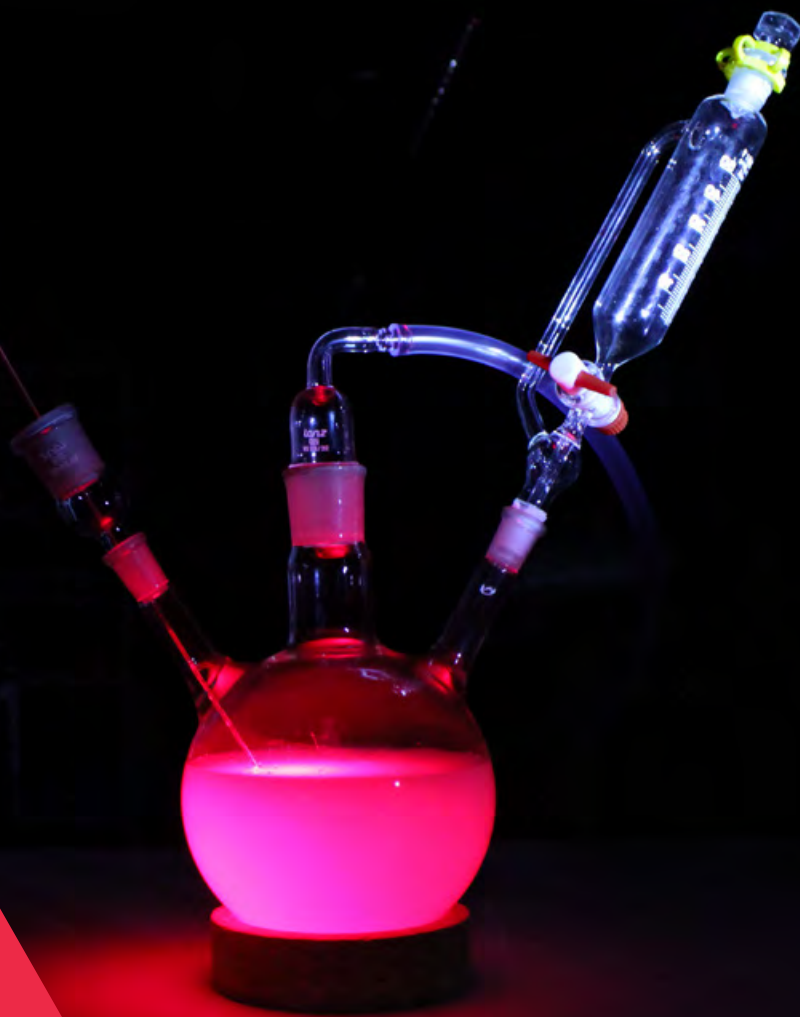
- Photon density wave (PDW) spectroscopy, especially suitable for inline characterization of chemical, physical or biotechnological processes in emulsions and dispersions
- Astrophotonics, providing, for example, miniaturized, light-weight components based on advanced micro-optics and laser technologies
- Nanotechnology, optical spectroscopy and scanning probe microscopy
- Development of innovative nanomaterials for sensing and spectroscopy



The Max Planck Institute of Colloids and Interfaces belongs to the Max Planck Society, which formally is a registered association for the advancement of science. The institute was founded in 1992 and soon became one of the leading research institutions worldwide. Colloid and interface science deals with very small structures within the nano- and micrometer range. On the one hand this domain represents a »world of hidden dimensions«, while on the other hand these tiny structures define the properties of materials and bio-systems on the mesoscopic and macroscopic levels. Current research topics include complex carbohydrate molecules, molecular force sensors and motors, mesoscopic hybrid systems, biomimetic membranes and vesicles, as well as the development of carbohydrate-based vaccines and intelligent biomaterials.

The focus is on biological or medical questions, as well as materials with their very diverse applications. Bioinspired materials research is joining the two directions, translating material structures found in nature into design concepts for engineering materials. This successful translation of basic research into socially relevant products has led to several startups, such as GlycoUniverse, Vaxxilon and Tacalyx.

»We offer process analytical technology for the characterization of highly concentrated emulsions and suspensions, including inline particle sizing in the nano- and micrometer range.«





## Services

We offer photon density wave (PDW) spectrometers as novel inline particle sizing technology for processing environments. The spectrometers are available for measurement campaigns and purchase. In addition, we provide solid-state optical calibration materials with defined absorption and scattering properties.

## Equipment & Methods

Our method is PDW spectroscopy. It allows for the calibration-free independent quantification of the optical coefficients of highly turbid liquid dispersions. With a time resolution in the sub-minute range and its fibre-optical probe, PDW spectroscopy is used for the characterization of, for example, polymerization reactions, emulsifications, crystallizations, or fermentations. PDW spectroscopy allows for inline particle sizing in concentrated systems, i. e. at volume fractions > 40 %, in the range of approximately 50 nm to 500  $\mu\text{m}$ .

»Your partner with long-standing expertise in nanomedicine development and nanoparticle formulations for your targeted success.«



The advent of ever more sophisticated treatment options and a continuously advancing understanding of disease aetiopathologies and progression mechanisms increases the need for cell-specific targeted delivery of therapeutic agents. Rodos Biotarget has developed expertise, know-how and proprietary positions in the development of formulations capable of delivering small molecule-, biological- or oligonucleotide-based therapeutics to specific cells and cellular locations.

## Services

- Development and production of targeted and non-targeted nanoformulations
- Targeted ligand selection and optimization
- Particle constitution, definition and optimization
- Preclinical PoP and regulatory preparation

- Tech transfer for upscaling, and GMP process validation for nanoparticles, including ligand and payload

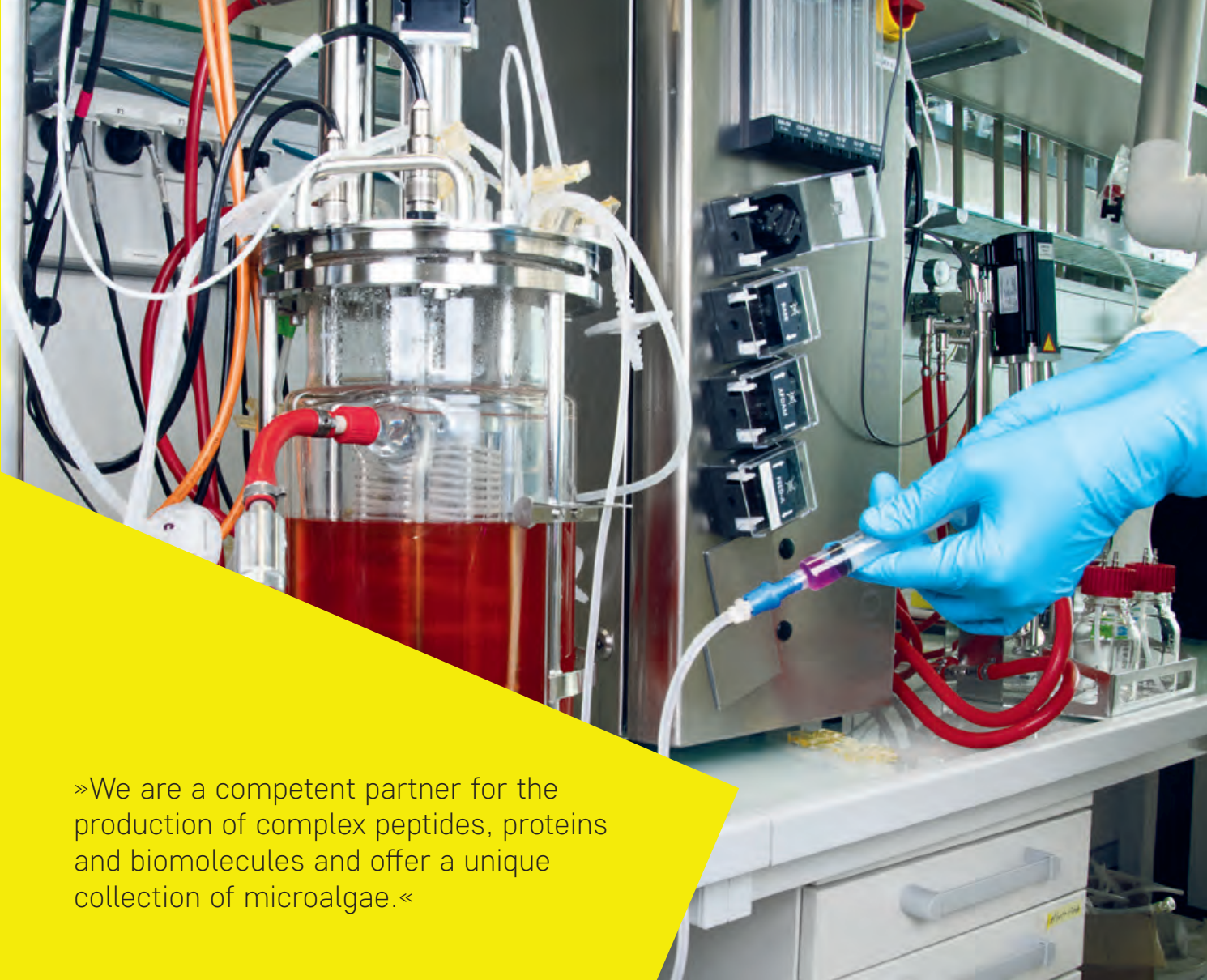
## Equipment & Methods

- Equipment to run alternative protocols for preparing nanoformulated drugs, depending on the active pharmaceutical ingredient, the volume (0.5 mL – 100s of millilitres) and the quality of supply: this includes, inter alia, manual extrusion, dual centrifugation and high-pressure homogenization, as well as the employment of a customized microfluidic system
- Particle characterization: particle size and size distribution, polydispersity index (PDI), zeta potential, composition by HPLC

3

MICRO /  
CELLULAR

Cell-free and Cell-based Bioproduction	55
Sustainable Polymer Materials Using Biotechnology and Microbiology	57
new/ era / mabs GmbH – Immunotechnology	59
Hybrotec GmbH	61
Department of Molecular Biology (Synthetic Biology Lab)	63



»We are a competent partner for the production of complex peptides, proteins and biomolecules and offer a unique collection of microalgae.«

## Services


The Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB) offers cell-free bioproduction of biomolecules, giving access to metabolites and cellular products that have toxic effects on cells or organisms under normal conditions. Thus they cannot be produced at all or only in small volumes while at the same time the demand from many disciplines and industries is constantly growing.

By making exclusive use of the sub-cellular components of the organism required for synthesis, biomolecules with complex, as well as completely new, properties can be produced efficiently in suitable reaction environments. The biobank CCCryo is a biological resource for cryophilic microscopic algae. Our research focuses on academic and private-sector

applications. Within this context we identify and characterize substances from microalgae, optimize the process of production and develop photobioreactors adjusted to the product of interest.

## Equipment & Methods

- S1 and S2 cell culture laboratories
- Molecular biological laboratories
- Fermentation vessels and bioreactors (from lab to pilot scale)
- Biomolecule production according to GLP and ISO standards
- Pharmacological characterization and modification of membrane proteins, multimeric proteins, protein labelling and functional characterization
- Unique collection of cryophilic algae



»Using biotechnology we produce bio-based monomers and polymers for sustainable materials.«



# Sustainable Polymer Materials Using Biotechnology and Microbiology – Fraunhofer IAP

57

New materials, which are based on renewable resources, are becoming more important. At the Fraunhofer Institute for Applied Polymer Research IAP we produce biobased monomers and polymers, additives and coatings for sustainable and biodegradable materials using biotechnological processes.

For our industrial partners we develop production strains, fermentation processes, enzymatic conversions and new materials, which are designed for their applications.

## Services

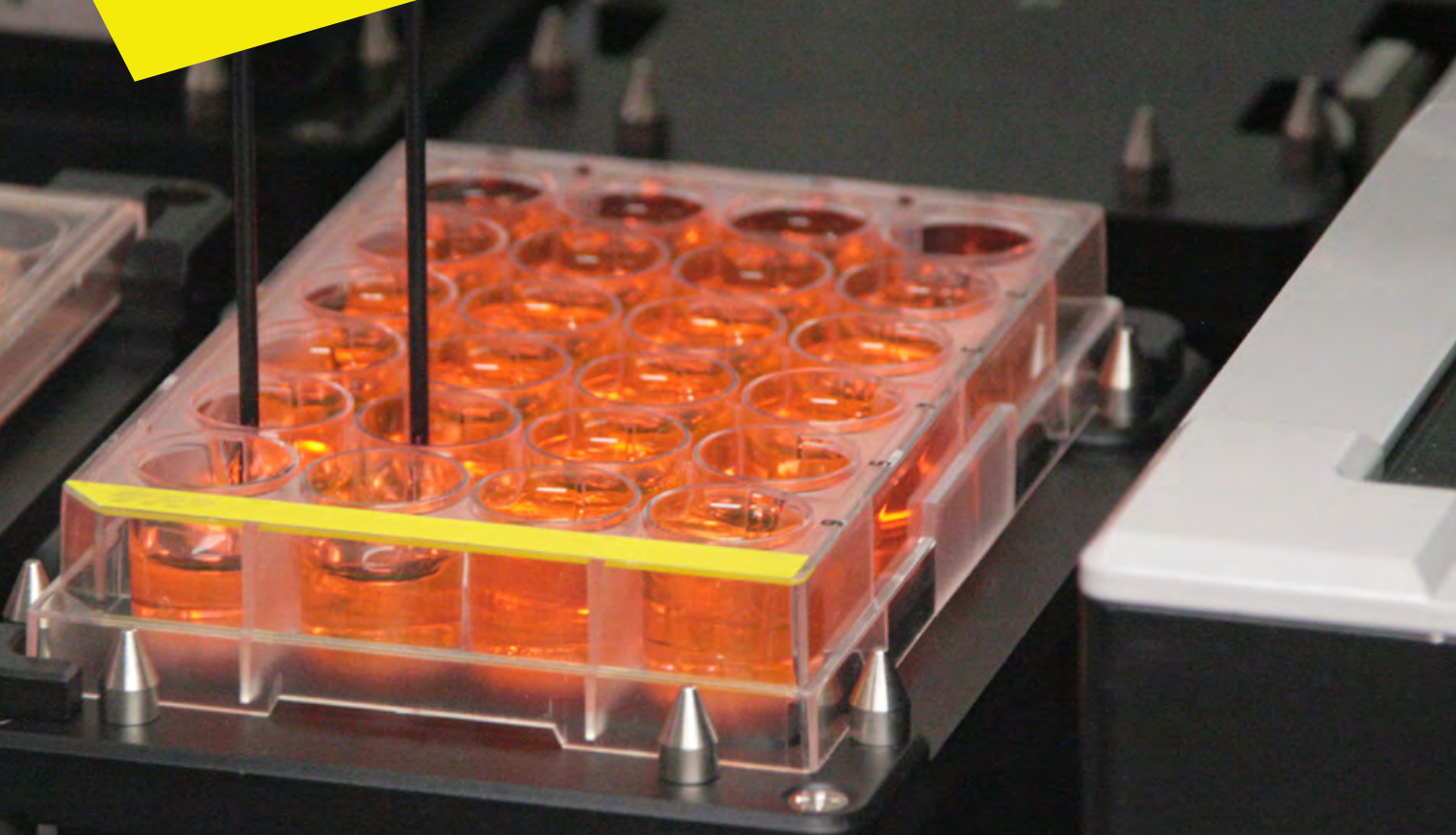
- Bio-based / biofunctional materials
- Biomedical / biocompatible materials
- Biological building blocks for polymers
- Utilization of biogenic residues

- Fermentation, strain development
- Enzymatic conversions
- Protein-polymer conjugates
- Integration of biomolecules in polymers
- Drug delivery
- Cell cultivation
- Bioassay development

## Equipment & Methods

- Plant biotechnology
- Fermentation technology (up to 100 L)
- Down-stream processing (cell separation, lysis, purification, concentration)
- Molecular biological laboratories
- Microbiological safety work benches
- Biointeraction studies

»Your partner for all antibody related questions and developments.«



The Professorship of Immunotechnology (PIT) at the University of Potsdam is developing innovative technologies in the field of antibody generation in combination with a unique, efficient and fast antibody producing platform. One of our main topics is the development of an artificial immune reaction to produce animal-free specific monoclonal antibodies in vitro. Our team is highly experienced and provides all-round solutions for monoclonal, recombinant and chimeric antibodies of murine, human and camelid origin. We developed a novel selection technology for antibody producing cells and founded our spin-off company new/era/mabs in 2014. We have a broad experience with third-party funded projects and cooperations with scientific and industrial partners.

## Services

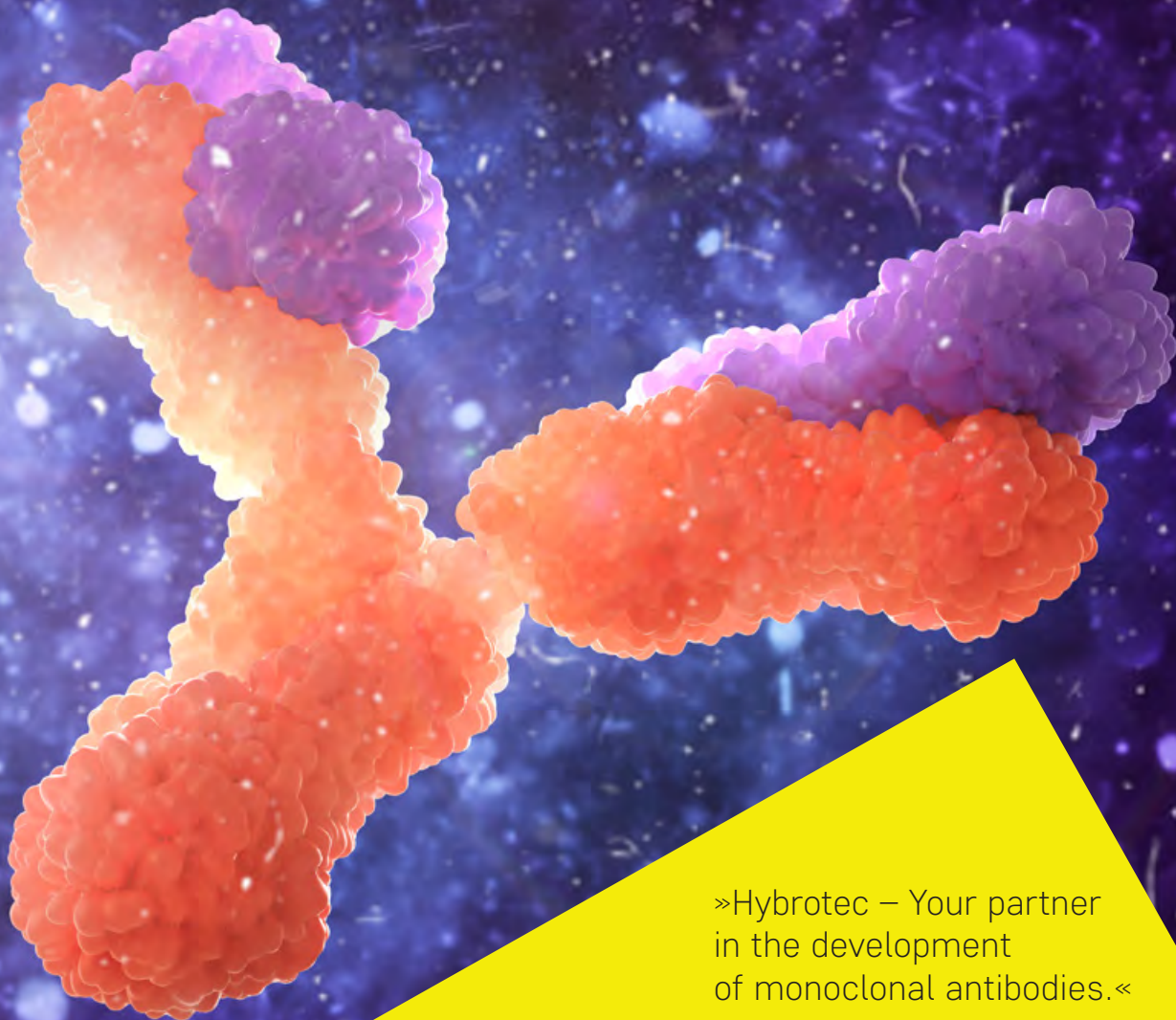
- Antibody generation, characterization and validation
- Assay development
- Hybridoma technology
- Phage display
- In vitro immunization
- Human, camelid and murine antibodies and chimeric formats
- SELMA™ selection technology (new/era/mabs)

## Equipment & Methods

- Mammalian and bacterial cell culture
- Isolation of primary cells
- Recombinant protein expression
- Protein purification and characterization
- ELISA, flow cytometry, immunofluorescence, bioplotting, automation of cell culture methods

[www.neweramabs.com](http://www.neweramabs.com)

[www.uni-potsdam.de/en/ibb-immuntechnologie/index](http://www.uni-potsdam.de/en/ibb-immuntechnologie/index)



The Hybrotec GmbH was founded in 2010 as a spin-off from the Department of Biotechnology at the University of Potsdam. Locating within the Potsdam Science Park was thus a logical step and has been beneficial as well for finding a good scientific network and potential cooperation partners. The scientists involved in the work of the company look back on more than 20 years of experience in immunological processes. The core competencies of Hybrotec are the generation of monoclonal antibodies and the development of homogeneous and custom-made immunoassays.

## Services

- Monoclonal antibodies (mAbs)
- Generation of hybridoma cells (especially against haptens)
- Production, characterization and purification of mAbs
- Immunization of mice
- Labelling (biotin, peroxidase, fluorophores)
- Consulting and realization of R&D projects

## Equipment & Methods

- Development of immunological detection systems
- Direct, indirect and competitive ELISA
- Homogeneous immunoassays
- Fluorescence quenching assays
- Bead-based assays



»We offer tools and strategies to design tailored organisms for your biotechnological applications.«

# Department of Molecular Biology (Synthetic Biology Lab) – University of Potsdam

63

## Services

The Synthetic Biology Lab of the University of Potsdam aims at the development of molecular tools for the design of organisms specifically tailored for biotechnological applications. Our group is working on a toolbox which simplifies the industrial production of technically relevant compounds in budding yeast and simple plants like the liverwort *Marchantia polymorpha*. This includes the assembly of complex heterologous pathways in yeast, different tools for the transcriptional regulation of native and non-native genes as well as genome editing techniques. In addition, the group focuses on the optimization of genome editing in crops as a footing for reprogramming transcriptional regulation of higher plants in order to improve stress-tolerance and increase yield and quality.

## Equipment & Methods

- Multi-gene assembly projects
- Genome editing in microorganisms and plants (gene knockout, gene knockin, base editing)
- Regulation of protein levels to optimize product yield
- Protein expression, construction of metabolic pathways
- High throughput single-cell detection of genome editing events in plant protoplasts (FACS)

4

ORGANISM







# Max Planck Institute of Molecular Plant Physiology

67

The Max Planck Institute of Molecular Plant Physiology (MPI-MP) belongs to the Max Planck Society, which formally is a registered association for the advancement of science. The MPI-MP was founded in 1994 and has attained a worldwide reputation for cutting-edge research. The institute conducts basic research on molecular, metabolic and physiological processes in plant cells, tissues, organs and whole plants. The overall goal is to understand how metabolism and growth are regulated and coordinated, to learn how they respond to environmental factors, and to unravel genetic factors that underlie these processes and responses. One important aspect of the institute research is the development and implementation of molecular and metabolic phenotyping technologies. Another is systems biology, which aims to gain a holistic and predictive understanding of

plant function, and is driven by a close interaction between the experimental and the computational scientists who work side by side in the institute. The institute is organized into three departments, each led by a director. Within the departments, young scientists lead their own research groups. Currently 400 employees from everywhere in the world work at the MPI-MP. The basic research carried out at the institute has led to startups of various companies.



ripac labor

Bestandsspezifisch  
perfringens  
d-Form  
für

»We have been offering tailor-made solutions for animal health preservation and prevention since 2001.«

The RIPAC-LABOR GmbH produces tailor-made herd-specific vaccines for animals based on the exact identification of the infection-causing pathogen(s) and in close cooperation with veterinarians and animal owners. For this purpose, we have built up a comprehensive proprietary pathogen database and strain collection. The vaccines serve to maintain and improve animal health and thus, reduce the use of antibiotics, especially in animal agriculture.

## Services

- Veterinary infection diagnostics (bacteria, viruses, parasites)
- Production of veterinary autogenous vaccines
- Consultation on vaccination strategy and hygienic stable management
- Diagnostic assay for botulinum neurotoxin
- Microbiological examination of biogas plants

- Microbiological analysis of feed and food
- Microbiome and epidemiological analyses

## Equipment & Methods

- MALDI-TOF MS based on an in-house reference database
- Bacteriology, virology
- Molecular biology (PCR, qPCR, ELISA etc.)
- Collection with continuously more than 40,000 strains
- Manufacturing licences for currently 80 veterinary pathogens
- Antibiotic resistance testing according to the Regulation on Veterinary Practice Dispensaries (TÄHAV)
- Coagglutination reagents

5

# PROTOTYPING

Operating Systems and Distributed Systems	73
Design and Test Methodology (DTM) Group	75
Automation and Miniaturization	77
Processing of Polymers	79
Printing and Surface Technologies, Films and Membranes	81
Development of High-tech Polymer Materials	83
eGeia GmbH	85
Virtual Reality Lab	87
3D Cave	89
Chemistry Education Lab	91



»We offer parallelization support and access to our HPC computer cluster.«



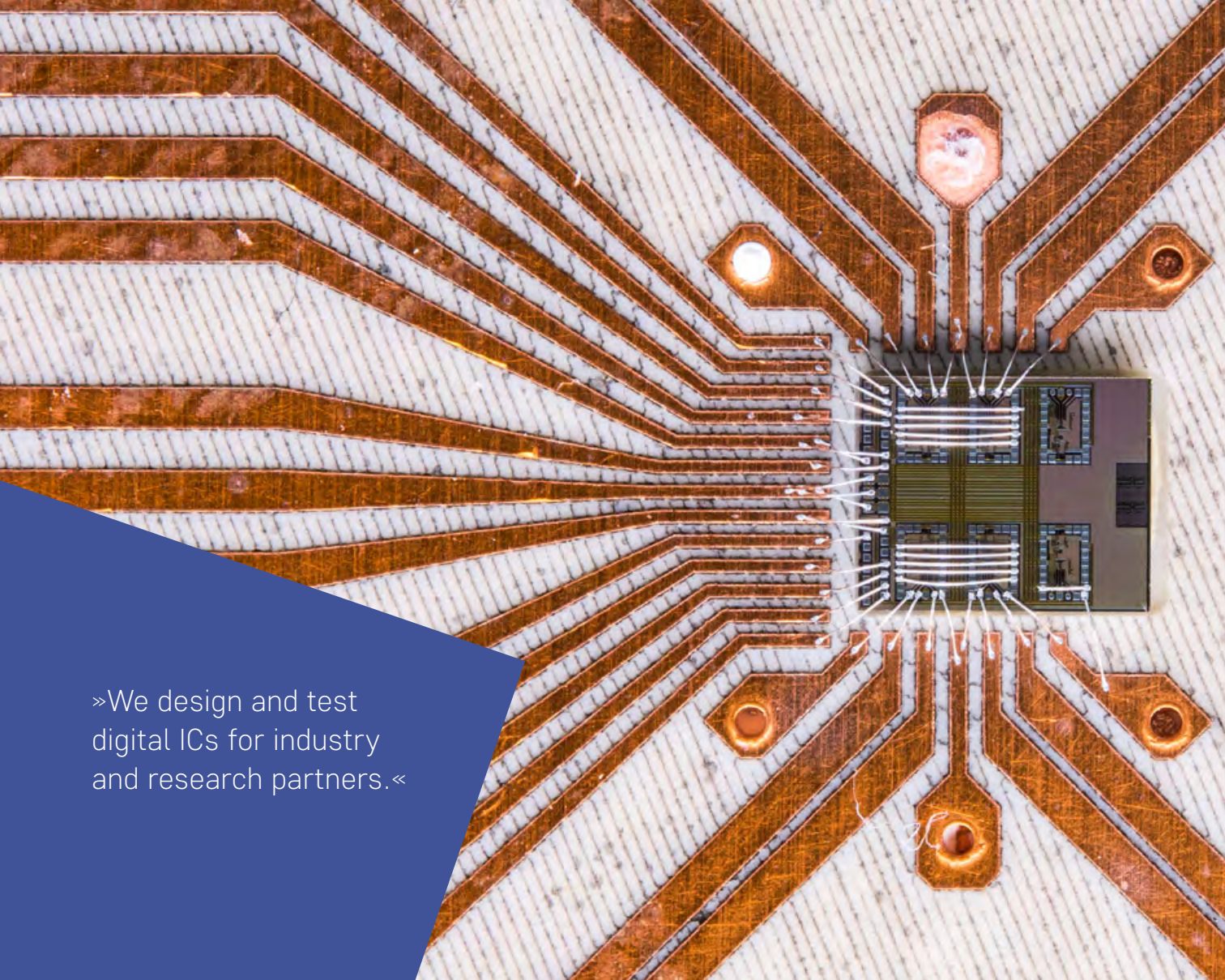
## Services

The Operating Systems and Distributed Systems group at the University of Potsdam investigates new concepts and algorithms in the field of cluster computing. Our special focus is efficient high-performance communication on networks like InfiniBand, which is the basis for the efficient parallelization of applications.

Our expertise includes parallelization for computer clusters and hybrid architectures equipped with accelerator cards. In addition, we evaluate architectures for big data computing regarding performance and reliability.

## Equipment

- Turing Cluster with 720 cores, parallel file system BeeGFS and InfiniBand network. Available software: MPI, OpenMP, OpenACC, CUDA
- OPA Cluster with 48 cores (96 hyperthread cores) with high-performance 100 GB Omni-Path network. Available software: MPI, OpenMP



»We design and test digital ICs for industry and research partners.«

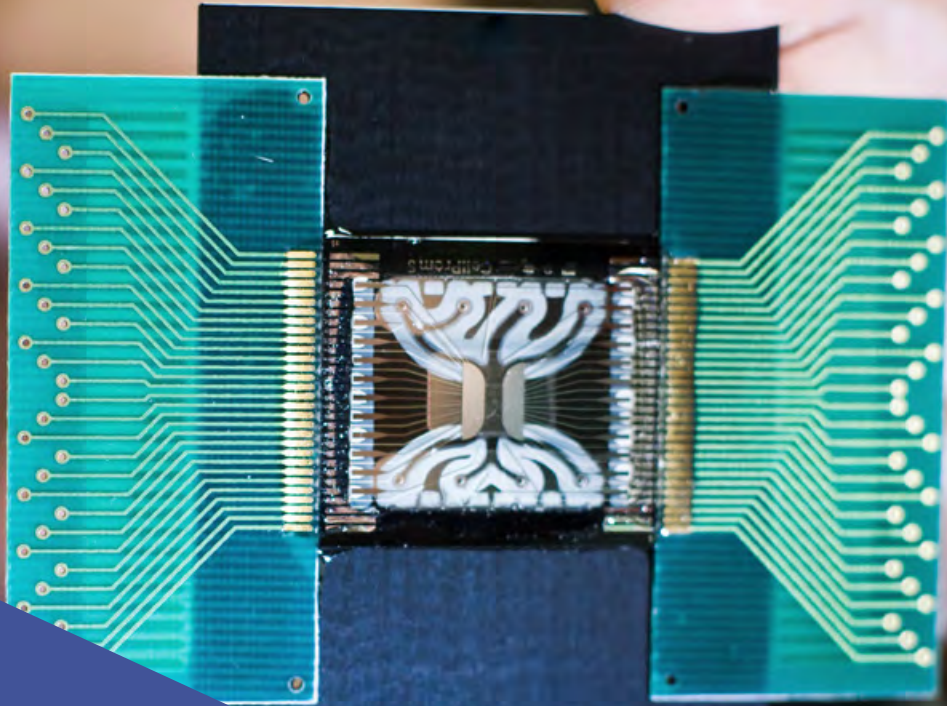
## Services

The DTM Group provides various services for industry and research partners. The main focus of the group is on the design and testing of digital integrated circuits (ICs). The group has great know-how in designing digital ICs in various technologies (250 nm, 130 nm, 65 nm, 40 nm etc.). Expertise is available in all aspects of design, from specification, hardware description, language coding and verification, up to design for testability, physical design and verification. Moreover, the group has strong testing capabilities and know-how using state-of-the-art automatic test equipment.

## Equipment & Methods

For design services the standard CAD tools are supported. The testing activities are performed using the Advantest 93000 SOC Pinscale platform and MuTest M-5S. The platform provides support for mixed-signal and analog testing. For on-wafer tests, an Accretech UF200A wafer prober with temperature chuck (-40°C – 125°C) is available. Temperature control is also possible with thermo-stream equipment for tempering packaged devices (-75°C – 228°C). As regards software, a test project management system, professional pattern conversion tool, and test data extraction and analysis are available.

The services are provided in collaboration with IHP GmbH – Innovations for High Performance Microelectronics / Leibniz-Institut für innovative Mikroelektronik, which has a joint lab with the University of Potsdam.



»Our facility has a strong focus on automation and miniaturization and will help to develop solutions for lab automation processes in biotechnology.«

## Services

The Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB) develops solutions for lab automation processes in biotechnology. Our team aims to simplify processes for the handling and monitoring of cells and liquids and develops devices for a wide range of point-of-care applications. Our researchers and engineers make use of microfabrication technologies, processes for the analysis and application of molecular interfaces and electronic effects, as well as microfluids and cell cultivation.

## Equipment & Methods

- Robotic processing system for barrier-free upscaling of throughput
- Software development tools
- 3D printers
- HPLC, mass spectrometry
- Scanner technology
- Scanning probe microscopy (AFM, SNOM)
- PVD system (plasma, sputtering)
- Biochip arrayer for the production of DNA chips and biochips
- Surface modification system with plasma activation
- Cutting lasers (film to metal) and cutting plotters (film to thick plastics)
- Automatic packaging and labeling of biological-technical products



Camp Des L

LEATHERMAN

At the Fraunhofer Institute for Applied Polymer Research IAP we have a broad range of polymer processing technologies. Here, we create conditions, which ensure that the developed methods work not only on a laboratory scale, but also under production conditions.

Application areas: plastics industry, lightweight construction, aerospace, automotive, electronics, optics, security technology, energy technology, textile industry, packaging, environmental and waste water technology, paper, construction and paint industries, medicine, pharmacy, cosmetics, biotechnology.

## Services

- Processing of (biobased) fibres, films, coatings, membranes and particles
- Lightweight components: construction, simulation, prototyping

- Optimization of material properties
- Additivation
- Printing technologies
- Additive manufacturing

## Equipment & Methods

- Extrusion, injection molding
- Reactive extrusion
- Spinning technologies (e.g. for biobased carbon fibres, cellulose fibres, films, nonwovens)
- Prepreg technology, curing technologies
- AFP technology (automated fibre placement)
- 3D printers (FDM, FFF, SLS and more)
- Laser technologies



»Printing and surface technologies  
as well as films and membranes  
are among our areas of expertise.«



At the Fraunhofer Institute for Applied Polymer Research IAP we develop materials and components for printed electronics such as efficient OLEDs and organic solar cells.

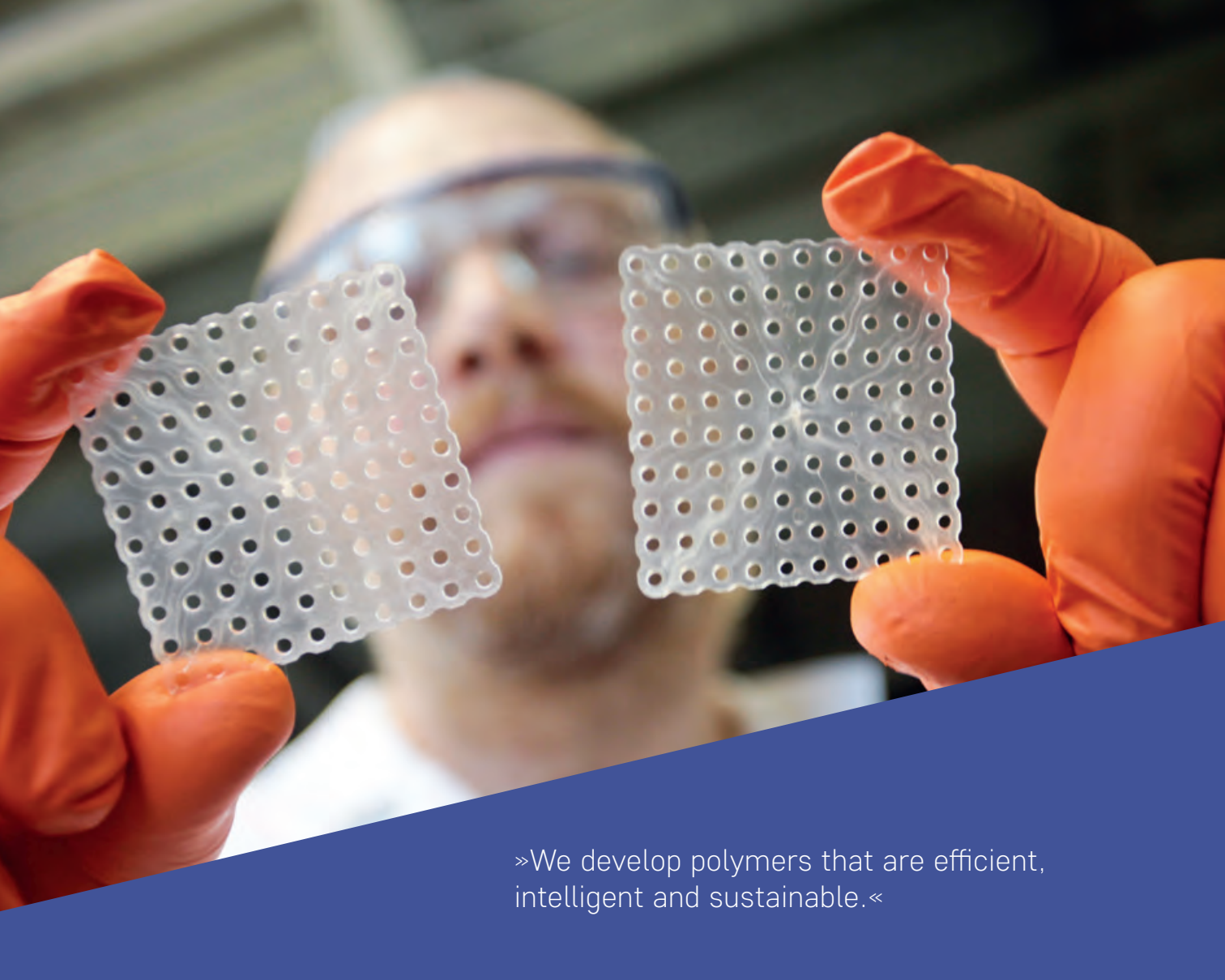
We also work on functional films and membranes, for example for the selective separation of substances in mixtures.

## Services

- Organic electronics, printed electronics
- OLED, OPV, OTFT, quantum dots
- Sensors, actuators
- Processes and printing technologies
- Nanoparticle-based ink systems
- Chemical, physical and biological functionalization of materials and surfaces
- Surface technology, film manufacturing
- Biosensors, (bio-based) films, paints and varnishes

## Equipment & Methods

- Printing technologies: ink-jet, esjet, slot-die coater, screen printing
- Pilot plant for printed electronics (clean room with special process conditions)
- Display characterization equipment
- Broad variety of film manufacturing techniques
- Surface technology equipment (e. g. plasma, wet-chemical, ALD, sputter)



»We develop polymers that are efficient,  
intelligent and sustainable.«

# Development of High-tech Polymer Materials – 83

## Fraunhofer IAP

At the Fraunhofer Institute for Applied Polymer Research IAP we develop bio-based and synthetic polymers that are efficient, intelligent and sustainable – from the laboratory to the industrial scale.

The applications are diverse: bio-based packaging, lightweight materials, phosphors for displays, truck tires with less abrasion, biodegradable bone splints, antimicrobial contact lenses, and much more.

### Services

- (Bio)plastics, biobased / biodegradable materials
- Films, fibres, biobased carbon fibres, membranes
- Thermoplastics, thermosets, elastomers, rubber
- Lightweight materials, resins, prepregs, components
- Materials with sensor functionalities, chromogenic polymers

- Optical and photosensitive functional materials
- Quantum dots, nanoparticles, colloids, microcapsules
- Dispersions, hydrogels, surfactants
- Functional proteins, proteinogenic materials
- Chemical, physical and biological functionalization of surfaces and materials
- Biomedical / biocompatible / biohybrid materials

### Equipment & Methods

- Synthesis technologies (up to ton scale)
- Techniques for modification of (bio)polymers
- Polymer processing equipment, spinning plant
- Prepreg and AFP technology (automated fibre placement)
- Printing and surfaces technologies
- Pilot plant for printed electronics
- Additive manufacturing
- Plant biotechnology, microbiological labs
- Material analysis and characterization



»Your partner for  
health care digitization.«

## Services

We help people with different products for the health market, ambient assisted living (AAL), care, rehabilitation, prevention and health promotion. Our core product is eGeia®-active (based on MeineReha®). It provides a medically validated three-dimensional movement analysis and real-time feedback to the patient. This movement analysis is part of a telematics system which assists and optimizes the treatment and therapy process. This includes a therapy interface and patient sensor system controlled via mobile app and software. Treatments take place at home and in clinics. The system covers therapy and rehabilitation and helps to prevent problems with human system movement.

## Equipment & Methods

We have eleven years of experience in developing eHealth-Systems, in giving guidance on regulatory affairs, health care digitization and data privacy as well as in advising medical institutions. Due to the system's modularity we are able to efficiently develop and adapt digital solutions to different application cases in medical areas.



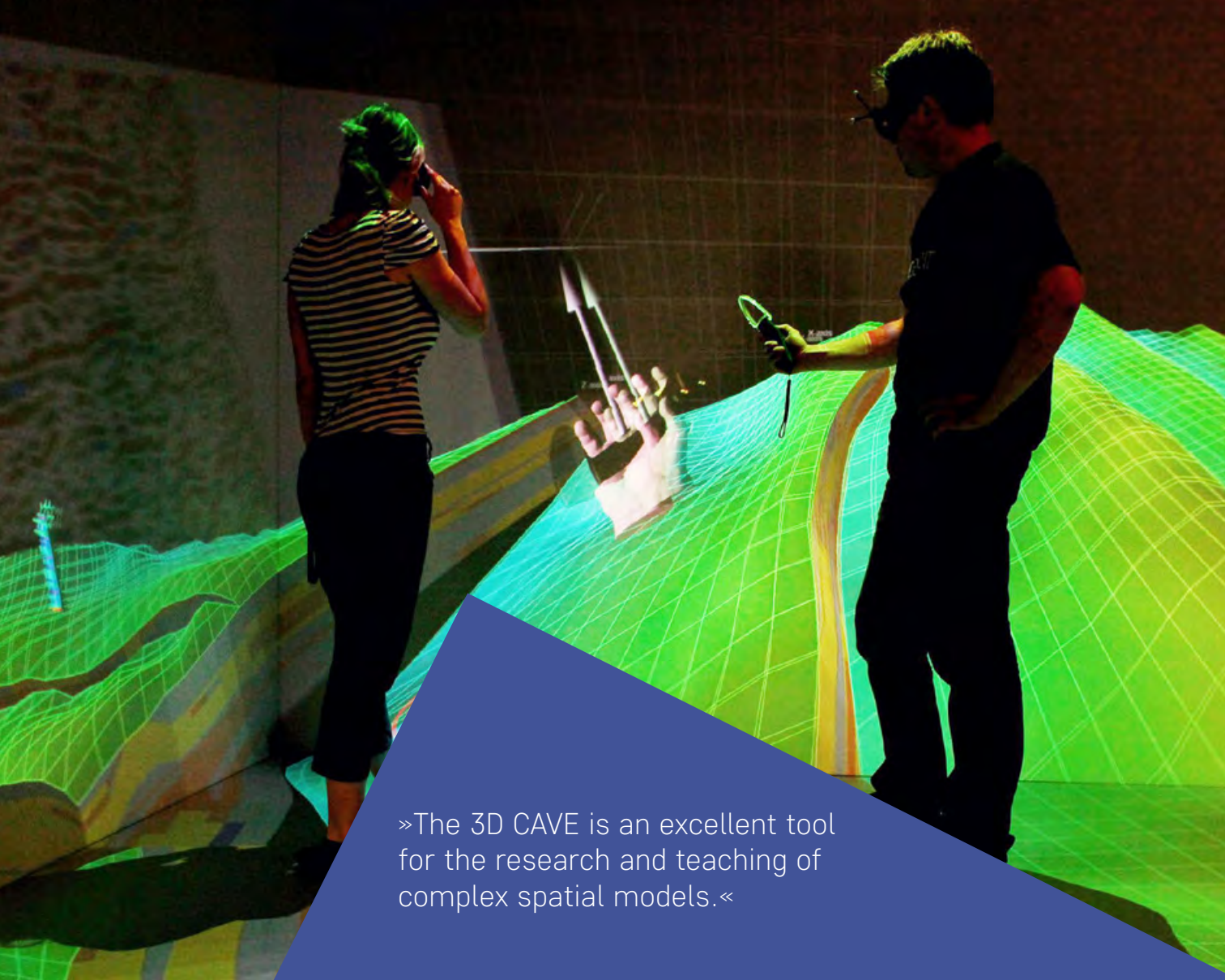
»We offer tools and expertise to develop and test virtual reality prototypes for educational purposes.«

## Services

The Virtual Reality (VR) Lab at the Department of Computer Science of the University of Potsdam aims at the scientifically proven prototyping of VR applications for educational purposes. The team is specialized in interdisciplinary educational projects and offers comprehensive consulting, concept development and the prototypical implementation of VR learning applications. The focus is always on a (specialist) didactic foundation on which individually effective technical developments can be built. The basic philosophy of our developments is that every didactic problem must be analysed in a holistic and individual manner. This is the prime prerequisite for us to develop and test technical solutions that fit perfectly to a specific educational challenge.

## Equipment & Methods

- State-of-the-art VR development systems including various modern VR headsets
- 3D software including Unity and Blender
- Extensive experience in agile software and hardware development
- Lectures and student projects in VR development



»The 3D CAVE is an excellent tool for the research and teaching of complex spatial models.«



## Services

The 3-sided computer-animated virtual environment (3D CAVE) at the Institute of Geoscience offers a modern immersive visualization that supports an improved and faster analysis of complex spatial and temporal multi-scale datasets. Based on nearly 10 years of experience, we focus on a fast data integration / easy-access usability, building on (1) a fast and smooth data / model transfer from standard software to 3-dimensional visualization, and (2) the immediate possibility of discussing and manipulating models with groups of up to 10 users directly within the visualization cluster. The setup offers an inspiring and supportive learning environment, allowing professional interaction with 3D data, presentation and training, as well as knowledge transfer with non-experts.

## Equipment & Methods

- Three 3.84 x 2.4 m screens (two side walls, one floor), 2 mm pixel resolution
- Active Infitec 3D stereo technology for max. 10 persons
- Modern ART head-, flightstick- and finger-tracking system
- Standard science software: e.g. ArcGIS, Matlab, ParaView, VMD and many more
- Innovative for the analysis of spatial and temporal multi-scale datasets
- Modification of models directly within the CAVE



Laura Teidge

»We offer assistance and cooperation opportunities in all aspects of science education and communication.«

## Services

At the Banerji Lab we are responsible for teacher education in chemistry. In addition, we conduct research in the field of curricular innovations and digitalization in chemistry teaching with the aim of implementing modern content and media in the classroom. We are interested in collaborations of any kind with the goal of transferring cutting-edge science research and technology into the curriculum of educational institutions.

We offer school classes and other interested groups the opportunity to visit our student laboratory iLUP (Innovation Lab Uni Potsdam), where they can conduct hands-on experiments and gain insight into modern science topics. We are currently focusing on the different applications of organic semiconductors, for example, the construction of a do-it-yourself organic LED (OLED) or solar cell.

[www.banerji-lab.com](http://www.banerji-lab.com)

Furthermore, we offer advanced training for in-service science teachers and other interested groups.

## Equipment & Methods

We provide all equipment and chemicals for a modern research-based and context-related chemistry education. When using the materials in schools or science labs, prior testing in our laboratory is recommended. We also provide experimental lectures, workshops and outreach activities such as science slams.

6

# PRODUCTION

BIOCYC GmbH & Co. KG	95
GlycoUniverse GmbH & Co. KGaA	97
Pohl + Jehne Zerspanungstechnik GmbH	99



»Your partner for peptides and  
custom synthesis service.«

The BIOCYC GmbH & Co. KG was founded in 1997 as a family-run company and supplies its customers with biochemicals and reagents, as well as provides a variety of services. Our production site is certified according to ISO 9001:2015 and EN ISO 13485:2016 and works in compliance with Good Manufacturing Practice (GMP) conformity. Our quality management system guarantees products of the highest quality.

## **Services**

- Manufacturing and modification of synthetic peptides / protease inhibitors – also upon customer request – with a HPLC purity higher than 95 %
- Peptide analytic services with qualitative and quantitative analysis of amino acids

## **Equipment & Methods**

- Analytical: HPLC, UPLC, LC-MS, polarimeter
- Production: lyophilisators, peptide synthesizer



»We can make custom  
glycans overnight.«



## Services

At GlycoUniverse we specialize in everything related to the synthesis of oligosaccharides.

Our custom products tailored to your individual needs are made by our experienced staff using licensed solid-phase synthesis technology. The Glyconeer2.1<sup>®</sup> can provide an ever increasing range of linear as well as more complex glycans at mg scales literally at the push of a button.

Our catalogue products include versatile building blocks for glycan synthesis, and our team is also happy to assemble very exotic custom building blocks.

## Equipment & Methods

— Glyconeer2.1<sup>®</sup>, the first fully automated solid-phase oligosaccharide synthesizer

»Do you need metal or plastic precision parts and components as well as technical devices for your products and designs? Then we are the right partner for you.«



We offer our services and know-how to design, develop, produce and manufacture all kinds of parts and components, as well as technical devices in accordance with the client's specific requirements. Our CAD/technical preparation team will support clients' planning from the first step.

## **Services**

- Design, development and production of all kinds of metal and plastic parts and components, as well as the direct machining of complex precision components
- Grinding, boring, coating
- Preferred branches: medical technologies, health science, laser technologies, measurement and sensor technologies

## **Equipment & Methods**

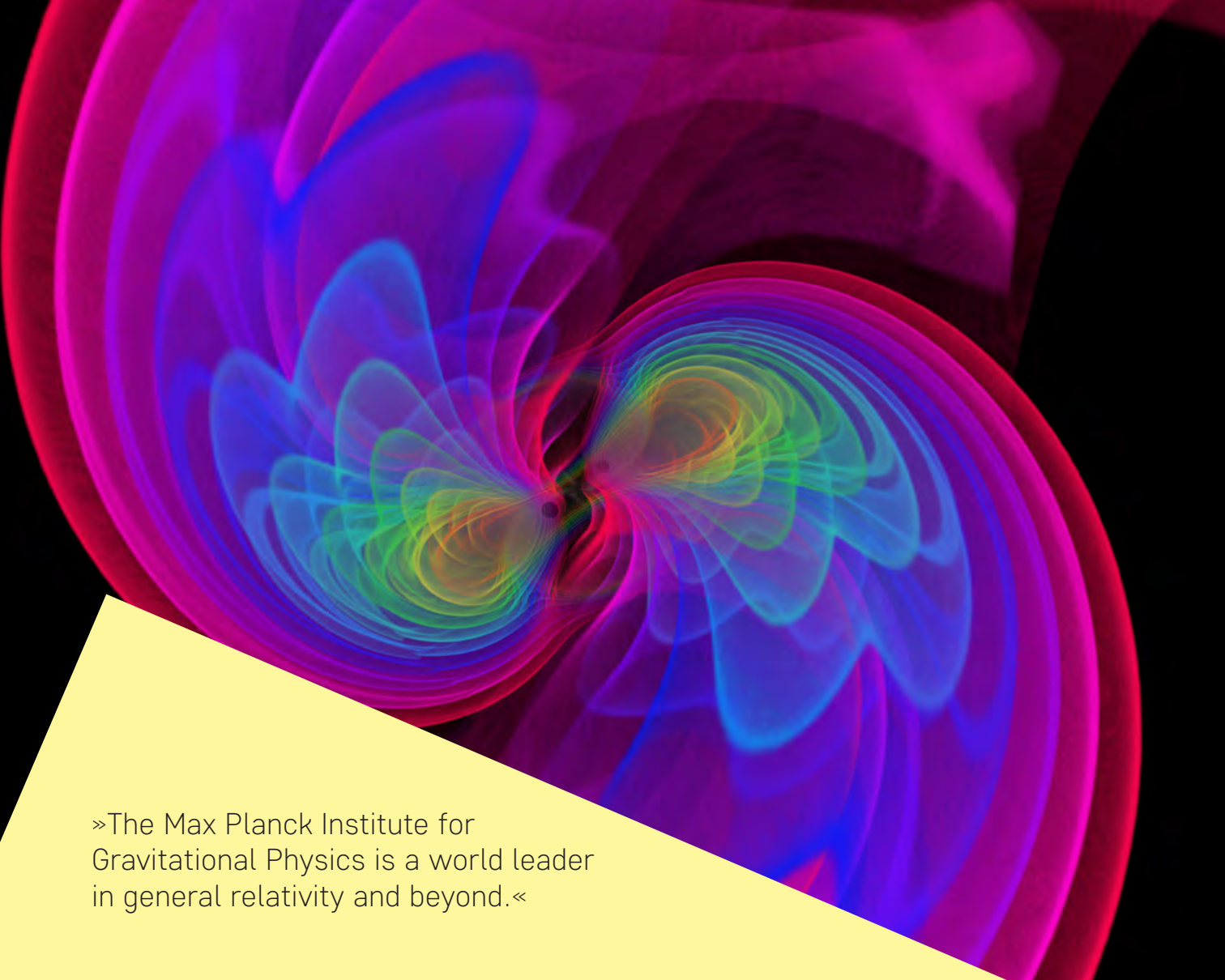
- Manufacture and production with CNC turning and milling machines
- An ERP system
- CAD / CAM-based manufacture

7

COSMOS /  
QUANTUM

Max Planck Institute for Gravitational Physics  
(Albert Einstein Institute)

103



»The Max Planck Institute for  
Gravitational Physics is a world leader  
in general relativity and beyond.«

# Max Planck Institute for Gravitational Physics (Albert Einstein Institute) 103

The Max Planck Institute for Gravitational Physics is the largest research institute in the world specializing in general relativity and beyond. It belongs to the Max Planck Society, a registered association for the advancement of science.

The Astrophysical and Cosmological Relativity division develops accurate analytical and numerical models of gravitational-wave sources, and uses them to analyse data, improving our ability to extract unique astrophysical and cosmological information from the observed signals, and testing Einstein's theory of general relativity. The division Computational Relativistic Astrophysics focuses on mergers of binary neutron stars and mixed binaries as well as stellar core collapse that form black holes. The division also studies more fundamental aspects of general relativity using numerical tools.

The department Quantum Gravity and Unified Theories attends to the development of a theory that unifies quantum theory and general relativity – in the framework of superstring theory as well as canonical quantization.

At the institute's branch in Hannover, two divisions focus on the development of gravitational-wave detectors and on the analysis of gravitational-wave data.

# Index

Areas of Research	07	— Sustainable Polymer Materials Using Biotechnology and Microbiology	57
BIOCYC GmbH & Co. KG	95	— Synthesis and Modification of Polymers and Nanoparticles	39
eGeia GmbH	85		
Facts & Figures	06	Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses (IZI-BB)	
Find Space for Your Ideas Commercial Properties & Building Plots	11	— Assay Development	35
		— Automation and Miniaturization	77
Fraunhofer Institute for Applied Polymer Research IAP		— Bioanalytics	33
— Analysis and Characterization of Polymers	41	— Cell-free and Cell-based Bioproduction	55
— Development of High-tech Polymer Materials	83	— Surface Modifications	37
— Printing and Surface Technologies, Films and Membranes	81	GlycoUniverse GmbH & Co. KGaA	97
— Processing of Polymers	79	Hybrotec GmbH	61
		Innovation Center innoFSPEC Potsdam	45



Location Map	04	Rodos Biotarget GmbH	51
Max Planck Institute for Gravitational Physics (Albert Einstein Institute) (MPI-AEI)	103	Science Park Management	09
Max Planck Institute of Colloids and Interfaces (MPICI)	47	Standortmanagement Golm GmbH	09
Max Planck Institute of Molecular Plant Physiology (MPI-MP)	67	University of Potsdam	
new / era / mabs GmbH	59	— 3D Cave	89
PDW Analytics GmbH	49	— A Pool of Specialists	13
Pohl + Jehne		— Career Service	27
Zerspanungstechnik GmbH	99	— Chemistry Education Lab	91
Potsdam Science Park	03	— Cryo-Electron Microscopy Facility	43
RIPAC-LABOR GmbH	69	— Department of Molecular Biology (Synthetic Biology Lab)	63
		— Design and Test Methodology (DTM) Group	75
		— Immunotechnology	59
		— Industrial and Economic Partnerships	23

— Inno-UP – Innovative University Potsdam	25
— Operating Systems and Distributed Systems	73
— Potsdam Transfer	21
— Virtual Reality Lab	87
 UP Transfer GmbH	 29
 Welcome Service	 19

**Cover:** Fraunhofer Institute for Applied Polymer Research IAP – Pilot for printed electronics.

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**p. 2** Standortmanagement Golm GmbH – Airfoto Potsdam Science Park. Foto: Lutz Hannemann

**p. 4** Standortmanagement Golm GmbH – Potsdam Science Park Location Map. Copyright: Mapbox, OpenStreetMap. Graphic: sans serif, Berliner Süden

**p. 6** Standortmanagement Golm GmbH – Facts and Figures. Graphic: sans serif

**p. 8** Standortmanagement Golm GmbH – People in an elevated walkway at a Max Planck Institute. Foto: Martin Jehnichen

**p. 10** Technology Campus – Copyright: Machleidt GmbH. Visualization: Lindenkreuz Eggert GbR. Foto: Benjamin Maltry

**p. 12** University of Potsdam – People sitting in front of the Faculty of Science at the campus in Golm. Copyright: University of Potsdam. Foto: Thomas Roese

**p. 18** Standortmanagement Golm GmbH – A group at work in the Language School at the GO:IN Golm Innovation Centre in the Potsdam Science Park. Foto: Martin Jehnichen

**p. 20** University of Potsdam, Potsdam Transfer – Staff and guests at an event. Copyright: Potsdam Transfer. Foto: Thilo Bergemann

**p. 22** University of Potsdam, Industrial and Economic Partnerships – Visitors at the event WarmUP. Copyright: Industrial and Economic Partnerships. Foto: Thomas Roese

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**p. 26** University of Potsdam, Career Service – Employees. Copyright: Career Service

**p. 28** iStocks – Public speaker at a science convention. Copyright: iStocks. Foto: gremlin

**p. 32** Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses – Microreactor. Copyright: Fraunhofer IZI-BB

**p. 34** Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses – Drug ivd-platform cardiac acute. Copyright: Fraunhofer IZI-BB

**p. 36** Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses – Fibroblast cells. Copyright: Fraunhofer IZI-BB

**p. 38** Fraunhofer Institute for Applied Polymer Research IAP – Reactor for polymer synthesis. Copyright: Fraunhofer IAP

**p. 40** Fraunhofer Institute for Applied Polymer Research IAP – Surface analysis with X-ray photoelectron spectroscopy XPS. Copyright: Fraunhofer IAP. Foto: Till Budde

**p. 42** Cryo-Electron Microscopy Facility – Talos F200C DSC. Copyright: University of Potsdam

**p. 44** Innovation Center innoFSPEC Potsdam – InnoSPEC Background. Copyright: nasa\_gallery; Zarya Maxim – stock.adobe.com. Montage: University of Potsdam, ZIM

**p. 46** Max Planck Institute of Colloids and Interfaces – Heterogeneous photoredox catalysis in a batch reactor. Copyright: Max Planck Institute of Colloids and Interfaces. Foto: Bartholomäus Pieber

**p. 48** PDW Analytics GmbH – Laser in three necked flask. Copyright: Oliver Reich

**p. 50** Rodos Biotarget GmbH – Laboratory, ampoule. Copyright: Rodos Biotarget GmbH

**p. 54** Fraunhofer Institute for Cell Therapy and Immunology, Branch Bioanalytics and Bioprocesses – Fermenter in cell culture. Copyright: Fraunhofer IZI-BB

**p. 56** Fraunhofer Institute for Applied Polymer Research IAP – Microbiological safety work bench. Copyright: Fraunhofer IAP

**p. 58** Immunotechnology Facility University of Potsdam, new / era / mabs GmbH – SELMA. Copyright: Immunotechnology Facility University of Potsdam, new / era / mabs GmbH

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- p. 66** Max Planck Institute of Molecular Plant Physiology – Melanie Höhne in the tissue culture lab. Copyright: Lox / MPI-MP
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Max Planck Institute of Molecular Plant Physiology – Melanie Höhne in the tissue culture lab.  
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- p. 88** University of Potsdam, ZIM – People in the 3D Cave. Copyright: University of Potsdam

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Notes





This practical research guide offers you an overview of services and cooperation partners you can find in the Potsdam Science Park – the biggest location for innovation in Brandenburg. Network and use these available resources – we can achieve more together!

[www.potsdam-sciencepark.de/en](http://www.potsdam-sciencepark.de/en)



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