

Latest Photonics Innovations for Infection Research

The Leibniz Center for Photonics in Infection Research (LPI) is a user-open translational infrastructure. Our goal is to facilitate and accelerate the translation of innovative photonic technologies from research, via technical development and clinical validation, towards medical products and services.

- Innovation of infection research: Fast and precise diagnostics, novel therapies, pandemic preparedness
- Bridging research and industry: From concept to applied medical solutions
- Direct connection to the Jena University Hospital (JUH): Rapid translation to the clinical practice
- User-open, excellent, connected: Build an international network between photonic and medical associations, industry (from startups to large companies) and authorities

LPI – Leibniz Center for Photonics in Infection Research gGmbH



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LEIBNIZ CENTER *for*
PHOTONICS *in*
INFECTION RESEARCH

Translating Cutting-Edge Photonic
Technologies into Clinical Applications

Fighting Infections with Light

Translating Photonics. Transforming Medicine.

Part of the National Roadmap for Research
Infrastructures

With funding from the:



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The Threat of Infectious Diseases

Infectious diseases are among the most common causes of death worldwide. Due to the rise of antimicrobial resistance (AMR) in pathogens, widely used antibiotics lose their effectiveness. This leads to even harmless infections becoming an increasing threat. Additionally, AMR makes clinical routine procedures and classic treatment approaches more difficult.

Non-specific, early symptoms of life-threatening infections complicate personalized and effective therapy. The causing pathogens need to be identified fast and accurately while bypassing their resistances.

The LPI targets the immense need for rapid and advanced diagnostic procedures in clinical settings. Light-based approaches give opportunities for innovative strategies in the fight against infections – bringing photonics to the clinic.



The LPI Infrastructure

The LPI combines application-oriented research with clinical expertise within a one-stop agency, linking science, medicine and industry. The LPI basic technologies serve as a toolbox of available photonic methods. They are currently under development and advanced to high technology readiness levels.

The First-in-Patient Unit (FiPU) provides clinical validation at the

intensive care unit of the JUH, directly translating research to application.

The FiPU and a new LPI laboratory building constitute the unique features of the LPI. Together with the LPI basic technologies, they are exclusively integrated within the LPI, making it a consolidated infrastructure for research, development, validation and application.



Our Services

The LPI supports their users from scientific proof-of-concept to medical application. Upon start-up, we provide the following services:

- Provision of the Core Facilities as an open user platform
- Execution of publicly funded projects and research proposals with clinical relevance, as well as commissioned research
- Cooperation with research facilities, startups, SMEs, large companies: provision of research infrastructure and rendering of services in the context of research proposals
- Consulting service for the topics of photonics and infection research

Starting in 2027, the FiPU is available for point-of-care pilot studies. The LPI laboratory building will be completed until 2030 and house the LPI basic technologies that continue to be refined until then.

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