

PROGRAM

**AKL – INTERNATIONAL LASER
TECHNOLOGY CONGRESS**

MAY 2–4, 2018 IN AACHEN

WWW.LASERCONGRESS.ORG



AKL '18

INTERNATIONAL LASER
TECHNOLOGY CONGRESS

WELCOME



SPONSORS AND EXHIBITORS AKL'18

FOREWORD

Media Partner

Are you looking for a forum where users, manufacturers and developers can intensively exchange ideas on the current state and perspectives of laser technology? Do you appreciate it when you can network with technology suppliers and customers to develop new strategies for your research, products or services and when you can directly profit from their experience in this sector? Then you have found the right event, the AKL'18.

For the twelfth time, laser manufacturers and laser users from various branches will meet at the biannual AKL – International Laser Technology Congress. Featuring over 600 participants, 77 speakers and over 50 sponsors, the AKL has established itself as the leading forum for applied laser technology in Germany. Supporting organizations include the European Commission, the European Photonics Industry Consortium EPIC, the Arbeitskreis Lasertechnik e.V., the European Laser Institute, OptecNet as well as industrial associations such as SPECTARIS, VDA, VDMA and VDI.

Join us and profit from AKL's international character thanks to its simultaneous translations in German and English. In addition, you can use the congress surroundings to find out more about the newest technological breakthroughs in over 80 live presentations of the Fraunhofer ILT.

We look forward to seeing you in Aachen!

Prof. Dr. rer. nat. Reinhart Poprawe
Director of the Fraunhofer Institute for Laser Technology ILT



INFORMATION, INSPIRATION, NETWORKING

AKL'18 – Laser Technology Conference

The AKL'18 Laser Technology Conference provides a comprehensive overview of current developments in laser materials processing in macro and micro areas and in laser beam development. Moreover, it offers laser manufacturers and users an ideal platform to intensively exchange ideas and experience.

Sponsors' Exhibition

Noteworthy companies from laser engineering show innovative products and processes, encompassing all aspects of laser technology, to interested congress participants.

Technology Business Day

The Technology Business Day is directed at leading managers and marketing directors who want specific information on the status and perspectives in the European, American and Asian laser markets.

Seminar Laser Technology ABC's

You have little or no experience in how laser technology can be used? Then you can obtain the foundations on how lasers work and where they can be applied in the Seminar Laser Technology ABC's.

Forum "Process Control" and Forum "Laser Additive Manufacturing"

If you would like to delve deeper into Process Control or Laser Additive Manufacturing, you can get a comprehensive overview on state of the art and current developments in two separate forums, as well as useful contacts to designated experts.

Conference Language

Lectures are presented in English and German with simultaneous interpreting.

PROGRAM STRUCTURE

AKL'18 – INTERNATIONAL LASER TECHNOLOGY CONGRESS

MAY 2–4, 2018

WEDNESDAY

Sponsors' Exhibition with 50 Companies (accompanying)

Seminar Laser Technology ABC's

Forum Process Control

Technology Business Day

Forum Laser Additive Manufacturing

Dinner with presentation of the "Innovation Award Laser Technology 2018"

THURSDAY

Sponsors' Exhibition with 50 Companies (accompanying)

Gerd Herziger Session

- Chances and Challenges for Laser Technology
- Digitization in Photonic Production

Laser Material Processing – Macro

- Selective Laser Melting

Laser Material Processing – Micro

- Micro Structuring

Laser Beam Sources

- Solid State and Fiber Lasers

Laser Technology Live with
80 Presentations

Kick-off
"IP-Research
Center DPP"

AKL'18 Networking with Snacks
at Research Campus DPP

FRIDAY

Laser Material Processing – Macro

- Cutting
- Welding
- Laser Material Deposition

Laser Material Processing – Micro

- Micro Joining
- Ultrafast Lasers – Applications
- Polishing and Thin Film Processing

Laser Beam Sources

- Ultrafast Lasers – Beam Sources
- Perspectives in Quantum Photonics
- Diode Lasers

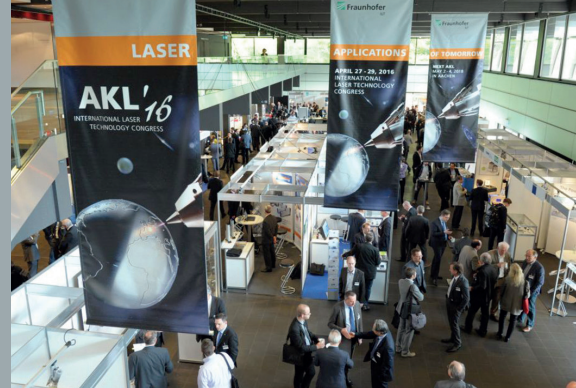
Outlook

- Prof. Reinhart Poprawe

Program subject to minor changes.

PROGRAM

MAY 2-4, 2018



WEDNESDAY, MAY 2, 2018

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FORUM – Laser Additive Manufacturing

from 9.00 Check-in and Coffee Reception

Room Brüssel Chairman: Prof. Johannes Henrich Schleifenbaum, Fraunhofer ILT, Aachen (D)

10.00 Overview of Current Research Topics in (Hybrid-) Additive Manufacturing Using LMD

Jan Bremer, Fraunhofer ILT, Aachen (D)

10.30 Hybrid-Additive Manufacturing: Potential and Challenges for the Modern Big Tool Manufacture

Dr. Tobias Todzy, Daimler AG, Sindelfingen (D)

11.00 Generating of Additively Built Structures for Seal Segments by LMD

Bryan McAuliffe, Lufthansa Technik Turbine, Shannon (IRL)

11.30 Driving LMD-Based AM Machines Shouldn't Drive You Too Crazy – Can Novel Software Approaches Help?

Jan Willem Gunnink, AutoDesk Ltd., Birmingham (UK)

12.00 Lunch – Visit of the Sponsors' Exhibition

14.00 Materials Engineering for Additive Manufacturing

Dr. Andreas Weisheit, Fraunhofer ILT, Aachen (D)

14.30 A Warehouse on the Data Stick or How AM Will Revolutionize Mobility

Stefanie Brickwede, Mobility goes Additive e. V., Berlin (D)

15.00 Additive Manufacturing of Gas Turbine Components

Dr. Sebastian Piegert, Siemens AG, Berlin (D)

15.30 Coffee Break – Visit of the Sponsors' Exhibition

16.30 NextGeneration Spaceframe 2.0 – Additive Manufacturing for Lightweight Aluminium Construction

Dr. Martin Hillebrecht, EDAG Engineering GmbH, Fulda (D)

17.00 Software Solutions for Digital AM Process Chains

David Madeley, Siemens PLM Software, Frimley (UK)

EVENING EVENT

19.00 - 23.00 Dinner with Presentation of the "Innovation Award Laser Technology 2018" in the Coronation Hall of Aachen's Town Hall
Doors open 18.15

FORUM – Process Control

from 9.00 Check-in and Coffee Reception

Room Berlin Chairman: Peter Abels, Fraunhofer ILT, Aachen (D)

10.00 SCeye – Process Control for Remote and Tactile Laser Joining Applications

Michael Ungers, Scansonic MI GmbH, Berlin (D)

10.30 Process Monitoring in Laser Welding – Novel Technologies and Reference Applications

Dr. Thomas Grünberger, Plasmio Industrietechnik GmbH, Wien (AT)

11.00 Process Monitoring and Control of Laser Beam Welding of Copper Materials

Dr. Reiner Ramsayer, Robert Bosch GmbH, Renningen (D)

11.30 360°-View on the Weld Seam with OCT for Laser Remote Welding

Thibault Bautze, Blackbird Robotersysteme GmbH, Garching (D)

12.00 Lunch – Visit of the Sponsors' Exhibition

14.00 Process Monitoring for Laser Plastic Welding

Carsten Wenzlau, Leister Technologies AG, Kaegiswil (CH)

14.30 Process Monitoring in Laser Beam Welding of Car Bodies

Stefan Heckt, Porsche Leipzig GmbH, Leipzig (D)

15.00 Process Monitoring of SLM

Dr. Yves-Christian Hagedorn, Aconity GmbH, Herzogenrath (D)

15.30 Coffee Break – Visit of the Sponsors' Exhibition

16.30 LMD – For Sure! New Sensor and System Technology for Higher Process Stability in Laser Metal Deposition

Stefan Mann, Fraunhofer ILT, Aachen (D)

17.00 Holistic, Intelligent and Networked – Industrie 4.0

Dr. Fabian Bause, Beckhoff Automation GmbH & Co. KG

EVENING EVENT

19.00 - 23.00 Dinner with Presentation of the "Innovation Award Laser Technology 2018" in the Coronation Hall of Aachen's Town Hall
Doors open 18.15

PROGRAM



WEDNESDAY, MAY 2, 2018

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SEMINAR LASER TECHNOLOGY ABC'S

from 11.30 Check-in and Light Refreshments

Room Berlin Chairman: Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)

12.30 Laser Processing for Industrial Applications – An Overview
Prof. Andreas Ostendorf, Ruhr-Universität Bochum, Bochum (D)

13.00 CO₂-Laser, Disk-Laser, Ultrashort Pulsed Lasers: A Selection from the Laser Applicant's View
Dr. Alexander Knitsch, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen (D)

13.30 Fiber and Diode Lasers: A Selection from the Laser Applicant's View
Markus Rütering, Laserline GmbH, Mühlheim-Kärlich (D)

14.00 The Pathway to the Workpiece – How to Efficiently and Application-Specific Form and Guide Laser Radiation
Dr. Markus Kogel-Hollacher, Precitec Optronik GmbH, Neu-Isenburg (D)

14.30 Coffee Break – Visit of the Sponsors' Exhibition

15.30 Safety and Regulation in Industrial Laser Processes
Eduard Maisner, LASERVISION GmbH & Co. KG, Fürth (D)

16.00 A Selection of Applicable Handling Systems for Laser Processing
Norbert Höpfe, KUKA Industries GmbH & Co. KG, Würselen (D)

16.30 When is the Laser Application More Profitable than Conventional Manufacturing Technologies?
Ulrich Berners, LBBZ GmbH, Geilenkirchen (D)

17.00 Which Current Developments in Laser Technology Are Relevant for Industrial Applications in the Coming Years?
Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)

EVENING EVENT

19.00 - 23.00 Dinner with Presentation of the "Innovation Award Laser Technology 2018"
Doors open 18.15 in the Coronation Hall of Aachen's Town Hall

TECHNOLOGY BUSINESS DAY

from 11.30 Check-in and Light Refreshments

Room Lissabon **Laser Markets in Europe, America and Asia**
Chairman: Prof. Peter Loosen, Fraunhofer ILT, Aachen (D)

12.30 Status Quo and Perspectives of the European Laser Market and Development of the World Market
Klaus Löffler, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen (D) / AG Laser VDMA, Frankfurt (D)

13.00 Status Quo and Perspectives of the Laser Markets in the US
• David A. Belforte, Belforte Associates, Sturbridge (USA)
• Dr. Ronald D. Schaeffer, PhotoMachining Inc., Pelham (USA)

13.30 Status Quo and Perspectives of the Laser Markets in China
Dr. Bo Gu, BOS Photonics, Boston (USA)

14.00 Status Quo and Perspectives of the Laser Markets in Japan
Dr. Kunihiko Washio, Paradigm Laser Research Ltd., Tokyo (JP)

14.30 Coffee Break – Visit of the Sponsors' Exhibition

Trends in Laser Processing

15.30 Laser Processing in Lightweight Production in Automotive Industry
Dr. Jan-Philipp Weberpals, Audi AG, Neckarsulm (D)

16.00 Metal Additive Manufacturing Applications in Aerospace and Energy
Stéphane Abed, Poly-Shape SAS, Salon de Provence (F)

16.30 Selective Laser Soldering of Electromechanical Components – A Curse or a Blessing?
Dr. Chris-Jörg Rosen, PHOENIX CONTACT GmbH & Co. KG, Blomberg (D)

17.00 Laser Processing in Microelectronics
Dr. Dirk Müller, Coherent Inc., Santa Clara (USA)

EVENING EVENT

19.00 - 23.00 Dinner with Presentation of the "Innovation Award Laser Technology 2018"
Doors open 18.15 in the Coronation Hall of Aachen's Town Hall

PROGRAM



THURSDAY, MAY 3, 2018

THURSDAY, MAY 3, 2018

AKL'18 – Laser Technology Conference

Experts from research and industry will bring you up to date on the current trends in laser technology. Whether you are active in the automotive or aerospace industry, electrical or power engineering, mechanical engineering and microtechnology – you will get firsthand know-how and practice-relevant suggestions at the AKL'18. Just visit the lectures, the Sponsors' Exhibition and our Live Presentations.

MAIN TOPICS

Gerd Herziger Session

- Chances and Challenges for Laser Technology
- Digitization in Photonic Production

Laser Beam Sources

- Solid State and Fiber Lasers
- Ultrafast Lasers – Beam Sources
- Diode Lasers
- Perspectives in Quantum Photonics

Laser Material Processing – Macro

- Selective Laser Melting
- Cutting
- Welding
- Laser Material Deposition

Laser Material Processing – Micro

- Micro Structuring
- Micro Joining
- Ultrafast Lasers – Applications
- Polishing and Thin Film Processing

Laser Technology Live

Over 80 Live Presentations will take place at Fraunhofer Institute for Laser Technology ILT and companies of the Application Center.

AKL'18 – LASER TECHNOLOGY CONFERENCE

from 8.00 Check-in and Coffee Reception

Room Berlin **Gerd Herziger Session**
Chairman: Prof. Reinhart Poprawe, Fraunhofer ILT, Aachen (D)

8.30 **Welcome**
Prof. Reinhart Poprawe, Fraunhofer ILT, Aachen (D)

8.40 **Take 5 – Chances and Challenges for Laser Technology**

- Dr. Peter Leibinger, CTO & Vice Chairman of the Managing Board, TRUMPF GmbH + Co. KG, Ditzingen (D)
- Dr. Mark Sobey, Executive Vice President & General Manager OEM Laser Sources, Coherent Inc., Santa Clara (USA)
- Dr. Eugene Shcherbakov, Managing Director, IPG Laser GmbH, Burbach (D)
- Dr. Qitao Lue, CTO & Deputy General Manager, Han's Laser Technology Industry Group, Shenzhen (CN)

10.30 **Coffee Break – Visit of the Sponsors' Exhibition**

11.00 **Session 1-3 – Laser Technology Conference**
see next page

12.30 **Lunch – Visit of the Sponsors' Exhibition**

Raum Berlin **Digitization in Photonic Production**
Chairman: Prof. Reinhart Poprawe, Fraunhofer ILT, Aachen (D)

14.00 **Generating Innovative Business Models by Digitization in Production**
Prof. Frank Piller, RWTH Aachen University – Technologie- und Innovationsmanagement TIM, Aachen (D)

14.30 **Networked Production in Automotive Industry**
Michael Lebrecht, Daimler AG, Sindelfingen (D)

15.00 **Digital Photonic Production – The Future of Laser Material Processing**
Prof. Reinhart Poprawe, Fraunhofer ILT, Aachen (D)

15.30 **Coffee Break – Visit of the Sponsor's Exhibition**

16.00 **Shuttle Transfer to Fraunhofer ILT / Research Center DPP**

RESEARCH CAMPUS DPP



WWW.FORSCHUNGSCAMPUS-DPP.DE

I³ Research Center Digital Photonic Production

With “Integrated Interdisciplinary Institutes – I³” the RWTH Aachen University establishes a novel and pioneering way of cross-disciplinary, university cooperation. In the “I³-Research Center Digital Photonic Production” (I³-RCDPP), 16 institutes from six faculties jointly research the singular properties of photons to be used in the production of the future. The construction of a research building, which is financed by the federal government and state of North-Rhine Westphalia, will be completed for this interdisciplinary research objective in summer 2018.

Prospectively, about 80 scientists will shape the future of the Digital Photonic Production on approx. 4300 square meters of usable floor area and laboratory.

In addition to the private funded Industry Building DPP, which has already been inaugurated in 2016, the new building and the I³-RCDPP thus constitute another element within the Research Campus Digital Photonic Production. The Research Campus DPP is an innovative way of long-term and strategic cooperation of research and economy “under one roof”. This spatial proximity offers a unique opportunity for continuous, direct interchange between university research and industrial development.

Research Focus

- Tailored light for research and photonic production
- Material development focusing on metals, semiconductor and bio materials
- Development and integration of photonic manufacturing processes in process and value chains

Joint Infrastructure in the I³-RCDPP (selection)

- Approx. 4300 square meters of usable floor area and laboratory
- Space for up to 80 researchers
- Powder atomization facility
- Multi-material, multi-beam SLM system
- Multi-material LMD system
- Ultra-short pulse laser with high-speed scanner
- Adaptive machining center with integrated laser beam source
- Multi-axis system for chemo-mechanical polishing of complex components
- CT-system and analytical laboratory

Participating Faculties

- Business and Economics
- Mechanical Engineering
- Electrical Engineering
- Medicine
- Materials Engineering
- Physics

Contact

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www.forschungscampus-dpp.de

The Kick-off of the “I³-Research Center DPP” takes place within AKL'18 on May 3, 2018 from 16.30 to 18.00 h.

GENERAL INFORMATION

ON-SITE CHECK-IN: Eurogress Main Entrance
Monheimsallee 48, 52062 Aachen



LOCATIONS AND OPENING HOURS

Forum "Laser Additive Manufacturing"

Wednesday, May 2, 2018, 10.00 - 17.30 h
Check-in starting at 9.00 h

Forum "Process Control"

Wednesday, May 2, 2018, 10.00 - 17.30 h
Check-in starting at 9.00 h

Seminar Laser Technology ABC's

Wednesday, May 2, 2018, 12.30 - 17.30 h
Check-in starting at 11.30 h

Technology Business Day

Wednesday, May 2, 2018, 12.30 - 17.30 h
Check-in starting at 11.30 h

AKL'18 – Laser Technology Conference

Thursday, May 3, 2018, 8.30 - 16.00 h
Friday, May 4, 2018, 8.30 - 16.30 h
Check-in May 3/4, 2018 starting at 8.00 h

Laser Technology Live

Thursday, May 3, 2018, 16.30 - 19.30 h
Fraunhofer ILT, Steinbachstraße 15, 52074 Aachen

Kick-off "I³-Research Center DPP"

Thursday, May 3, 2018, 16.30 - 18.00 h
Research Center DPP, Campus-Boulevard 79, 52074 Aachen

Shuttle Transfer on May 3, 2018

Eurogress – Fraunhofer ILT/ Research Center DPP: 16.00 - 16.30 h
Fraunhofer ILT – Research Campus DPP: 19.30 - 20.00 h
Research Campus DPP – City Center: 22.00 - 23.30

WWW.LASERCONGRESS.ORG

Sponsors' Exhibition

Wednesday, May 2, 2018, 12.00 - 17.00 h
Thursday, May 3, 2018, 10.30 - 16.00 h
Friday, May 4, 2018, 10.00 - 16.00 h
Foyer Hall Europa and Brüssel at the Eurogress

Awards Ceremony with Dinner

Registration necessary (fee required)
Wednesday, May 2, 2018
19.00 - 23.00 h (Doors open 18.15 h)
Coronation Hall / Town Hall, Markt, 52062 Aachen

AKL'18 Networking with Snacks at Research Campus DPP

Registration necessary (fee required)
Thursday, May 3, 2018
20.00 - 23.00 h (Doors open 19.30 h)
Research Campus DPP, Campus-Boulevard 79, 52074 Aachen

Conference Language

Lectures are presented in English and German with simultaneous interpreting.

Parking Garages

Near the conference locations:

- Eurogress: Parking Garage Eurogress, Monheimsallee (fee required)
- Coronation Hall / Town Hall: Parking Garages Mostardstraße and Büchel (fee required)

For further information regarding parking possibilities in Aachen, please visit: www.apag.de (in German)

GENERAL INFORMATION

EARLY BIRD REGISTRATION! Special discounted registration fees until March 9, 2018.

INFO

PARTICIPATION CONDITIONS

Registration Fee

The registration fee includes conference proceedings, lunch or snacks, coffee breaks on the booked conference day as well as the Shuttle Transfer to Laser Technology Live at Fraunhofer ILT, to Research Campus DPP and the City Center.

EARLY BIRD REGISTRATION!

Those booking by March 9, 2018 will be able to take advantage of a 10 % Early Bird Discount on conference fees.

Seminar Laser Technology ABC's – May 2, 2018

- 300 EUR / 270 EUR (Early Bird Registration)
- 240 EUR (Member*)

Technology Business Day – May 2, 2018

- 380 EUR / 342 EUR (Early Bird Registration)
- 304 EUR (Member*)

Forum "Laser Additive Manufacturing" – May 2, 2018

- 510 EUR / 459 EUR (Early Bird Registration)
- 408 EUR (Member*)

Forum "Process Control" – May 2, 2018

- 510 EUR / 459 EUR (Early Bird Registration)
- 408 EUR (Member*)

Awards Ceremony on May 2, 2018

Dinner with presentation of the "Innovation Award Laser Technology 2018"

- 120 EUR/Person (plus 19 % VAT)
- 120 EUR/Accompanying Person (plus 19 % VAT)

PARTICIPATION CONDITIONS

AKL'18 – Laser Technology Conference (Day 1) – May 3, 2018

- 610 EUR / 549 EUR (Early Bird Registration)
- 488 EUR (Member*)

AKL'18 – Laser Technology Conference (Day 2) – May 4, 2018

- 610 EUR / 549 EUR (Early Bird Registration)
- 488 EUR (Member*)

Evening Event on May 3, 2018

AKL'18 Networking with Snacks at Research Campus DPP

- 80 EUR/Person (plus 19 % VAT)

* Discounts Member

As a member of Arbeitskreis Lasertechnik AKL e.V., the European Laser Institute ELI e.V. or a scientific organization (universities, institutes of technology, Fraunhofer Institutes and research facilities), you are entitled to a discount of 20 % on conference fees as long as you book by March 9, 2018.

Registration

To register please use the form provided online at www.lasercongress.org. Once you have signed up you will receive a confirmation of participation as well as your invoice, which can be settled either by credit card (VISA, MasterCard) or by bank transfer.

REGISTRATION DEADLINE April 18, 2018.

Program subject to minor changes.

GENERAL INFORMATION

EARLY BIRD REGISTRATION! Special discounted registration fees until March 9, 2018.

INFO

PARTICIPATION CONDITIONS

WWW.LASERCONGRESS.ORG

On-Site Check-In

You will receive your name badge, the conference proceedings as well as the admission ticket for the evening event you have booked. Please wear your badge to all conference sessions and events.

Cancellations

Cancellations of participation must be submitted in writing. Those who cancel by March 31, 2018 will be reimbursed the attendance fee minus an administration charge of 90 EUR. Cancellations after this date will incur the full attendance fee. Should this happen, you will be sent a summary of the conference proceedings. The surcharge of 4 % gross of the total for payments by credit card is non-refundable. If you are not able to attend, we welcome a substitute participant instead. In this case, please provide us with the name of the substitute participant via e-mail: akl@lasercongress.org.

Organization

Fraunhofer Institute for Laser Technology ILT
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www.ilt.fraunhofer.de
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Organization AKL'18

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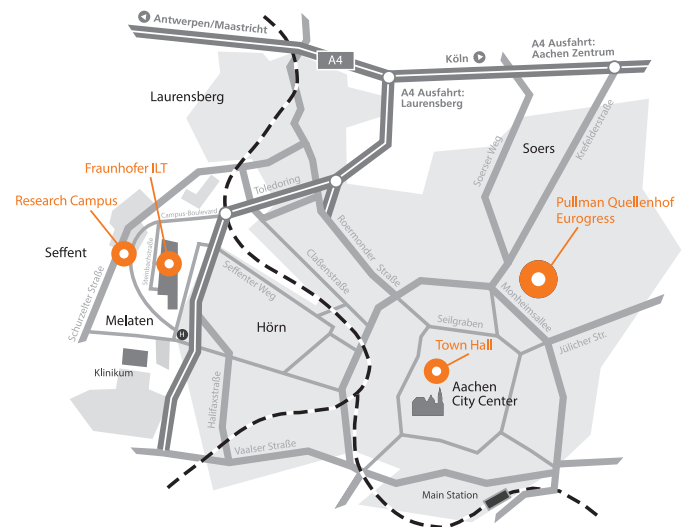
Hotels

A certain contingent of hotel rooms with special negotiated prices have been reserved for the participants of AKL'18 and are valid for bookings from May 1–4, 2018. We strongly suggest that you make your reservations early in one of the following hotels (Keyword: AKL'18):

- Pullman Quellenhof Aachen *****
- Novotel Aachen City *****
- Aquis Grana – City Hotel *****
- INNSIDE by Melia Aachen *****
- Mercure Hotel Aachen am Dom *****
- Hampton by Hilton – Aachen Tivoli *****
- Hotel Lousberg *****
- Ibis Styles Aachen City *****

For further information please visit: www.lasercongress.org.

Conference Locations



WWW.LASERCONGRESS.ORG

Organization

Fraunhofer Institute for Laser Technology ILT
Steinbachstraße 15, 52074 Aachen, Germany
www.ilt.fraunhofer.de

Contact

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Supporting Organizations

- Arbeitskreis Lasertechnik e.V.
- ELI – European Laser Institute
- EPIC – European Photonics Industry Consortium
- European Commission
- OptecNet – Competence Networks for Optical Technologies
- SPECTARIS – German Industry Association for Optical, Medical and Mechatronical Technologies
- VDA – German Association of the Automotive Industry
- VDI Technology Center
- VDMA – German Engineering Federation

Media Partner

WILEY

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