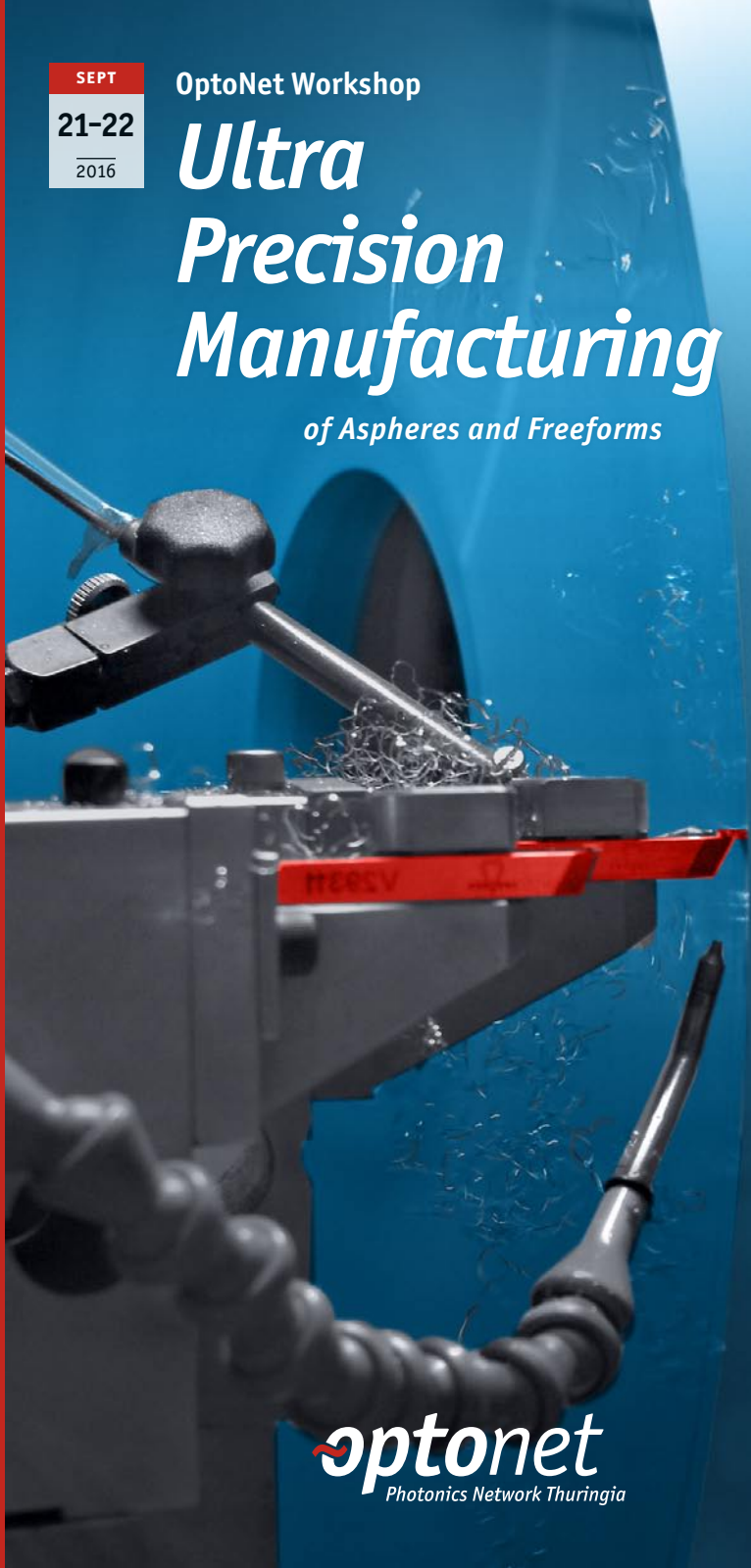
SEPT
21–22
2016

OptoNet Workshop

Ultra Precision Manufacturing

of Aspheres and Freeforms



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Photonics Network Thuringia

The OptoNet Workshop ›Ultra Precision Manufacturing of Aspheres and Freeforms‹ unites every two years experts - scientists and entrepreneurs - from all over the world to a high class technology exchange of the latest manufacturing techniques, applications and products. A cooperation with the Fraunhofer IOF.

CONTENTS OF THE WORKSHOP

Main Topics

- Freeform optics
- Metrology for Aspheres and Freeform Optics
- Manufacturing and Process Issues
- New Technologies for Freeform Optics

Main Focus

- Aspheres, freeforms and metal optics – from design to fabrication
- Generation of visions for new applications and products
- Representation of outstanding potentials for R&D tasks

up-to-date information and registration

WWW.OPTONET-JENA.DE/UPM

WEDNESDAY, SEPTEMBER 21

9:00 **Public Workshop of Innovative Regional Growth Core *fo*⁺ [freeform optics plus]**
CHAIR : *Lutz Reichmann* › JENOPTIK Optical Systems, Germany

Latest results and demonstrator presentation of the project alliance
language: German, slides in English

Poster exhibition & Guided tour

The Innovative Regional Growth Core fo⁺ is supported by the German Federal Ministry of Education and Research (BMBF).

11:30 **REGISTRATION & WELCOME SNACK**

12:45 **Welcome and latest research news**
Andreas Tünnermann › Fraunhofer IOF, Germany

13:00 **PART I : Challenges on Freeform Optics**
CHAIR : *Andreas Tünnermann* › Fraunhofer IOF, Germany

Present work on diamond machining of freeform optics and on related metrology
Chris Evans › Center for Precision Metrology at UNC Charlotte, USA

Large SiC technology for space application in China
Xuejun Zhang › Changchun Institute of Optics (CIOMP), China

Freeform optics: current and future applications
Andreas Pistelok › Carl Zeiss Jena, Germany

Coffee Break

14:00 **PART II : Metrology**
CHAIR : *Edgar Bader* › Carl Zeiss Jena, Germany

Asphere test CGHs with advanced alignment features
Uwe Zeitner, Frank Burmeister › Fraunhofer IOF, Germany

Scanning multiwavelength interferometry as most flexible tool for asphere, acylinder and freeform metrology
Jürgen Petter › AMETEK, Germany

Non-null test measurement of aspheres with Fizeau- and Twyman-Green interferometers
Stefan Muehlig › Mahr, Germany

Exhibition & Coffee Break

16:00 **PART III : Manufacturing and Process Issues**

CHAIR : *Klaus Schindler* › OptoNet, Germany
Andreas Gebhardt › Fraunhofer IOF, Germany

SESSION A

Freeform machining with Precitech servo tools
Jeff Roblee › AMETEK Precitech, USA

Fabrication techniques for complex freeform optics with non-circular apertures
Chris Morgan › Moore Nanotechnology Systems, USA

Recent trends in the application of diamond milling tools
Erik van Hall › Contour Fine Tooling BV, The Netherlands

Toolpath generation and manufacturing simulation for optical surfaces
Alan Edwards › Western Isle, UK

SESSION B

Enhanced measurement and correction of mid-spatial frequencies through advances in SSI and MRF technologies
Paul Dumas, Jean Pierre Lormeau › QED Technologies International, USA

Processing high end optical surfaces utilising the OptoTech MultiTool concept
Matthias Pfaff, Sebastian Stoebenau › OptoTech Optikmaschinen, Germany

Measuring large freeforms using UA3P-ultrahigh accurate 3-D profilometer
Tomofumi Morishita › Panasonic Production Engineering Co., Japan

Challenges and solutions in the optical measurement of aspheres
Peter de Groot › ZYGO Corporation, USA

17:30 **On-site presentations @ Fraunhofer IOF laboratories**

20:00 **Gala Dinner**
Hotel Schwarzer Bär Jena

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Carl Zeiss Jena &
Qioptiq Photonics

All attendees are invited to the traditional ›HOTEL SCHWARZER BÄR‹ *in the city centre of Jena.*

THURSDAY, SEPTEMBER 22

9:00 **PART IV : New Technologies for Freeform Optics I**
CHAIR : *Jeff Roblee* › AMETEK Precitech, USA

Mid-spatial frequencies - next stages in the struggle
Greg Forbes › Macquarie University Sydney, Australia

Freeform optical manufacturing at Instrument Technology Research Center
Aaron Wei-Yao Hsu › ITRC NARLabs, Taiwan

Laser polishing and laser beam figuring of optical surfaces
Christian Weingarten › Fraunhofer ILT, Germany

Large aperture modular freeform VIS telescope with smart alignment approach
Matthias Beier › Fraunhofer IOF, Germany

Exhibition & Coffee Break

11:00 **PART V : New Technologies for Freeform Optics II**
CHAIR : *Frank Guse* › Qioptiq Photonics, Germany

Ultrasonic assisted diamond machining of freeform optical surfaces in hardened steel
David Robertson › Durham University, UK

Ultra-precision glass molding for freeform and micro optics
Olaf Rübenach, Tom Rasche › INGENERIC, Germany

Freeform manufacturing based on plasma jet machining
Thomas Arnold, Georg Boehm ›
Leibniz Institute of Surface Modification (IOM), Germany

Extreme lightweight freeform mirrors made by additive manufacturing
Enrico Hilpert › Fraunhofer IOF, Germany

Closure
Klaus Schindler › OptoNet, Germany

Exhibition & Lunch

WORKSHOP REGISTRATION

OR REGISTER ONLINE

OPTONET-JENA.DE/UPM

Please register until September 2, 2016 at
www.optonet-jena.de/upm
or complete the form below and send it to
+49 (0) 3641 · 573 36 59 or
info@optonet-jena.de

☐ I am/our company or institution is a member of a German Innovation Network for Optical Technologies.

☐ I would like to attend the Gala Dinner on September 21.

☐ Please keep me informed about future workshops or events of OptoNet e.V.

For booking an exhibition stand please register at
www.optonet-jena.de/upm

TITLE LAST NAME*

FIRST NAME*

COMPANY/INSTITUTION*

ADDRESS LINE 1*

ADDRESS LINE 2

ZIP CODE* CITY*

COUNTRY*

TELEPHONE*

E-MAIL*

DATE* SIGNATURE*

* FIELDS MARKED WITH THE RED STAR ARE MANDATORY

WITH YOUR REGISTRATION YOU ACCEPT OUR TERMS & CONDITIONS.

REGISTRATION

Please register until September 2, 2016 at the latest.
Register online at www.optonet-jena.de/upm
or complete the form inside and send it by fax or email.

ATTENDANCE FEE

- 430 € regular
- 310 € for members of the German Networks for Optical Technologies
- 49 € for students (student ID required)

(no VAT included according to §4 Nr. 22a UStG)

EXHIBITION

Take the chance and present your latest technologies and products to the workshop audience. The exhibition will be held in the foyer of the Abbe Center, right next to the dining area and the entrance to the auditorium. The exhibition fee is 500 €. Exhibition space will be limited.

HOTEL RESERVATION

For the convenience of our attendees we have reserved contingents with special prized rooms at the biggest hotels in Jena. For more information, please visit our conference website www.optonet-jena.de/upm

PAYMENT

Please arrange a bank transfer of the fee by September 9, 2016, at the latest, to the account of OptoNet e.V.:

Bank	Sparkasse Jena
Swift code	HELA DE F1 JEN
IBAN	DE40 8305 3030 0000 2710 04
Purpose	WSUPM [name, first name]

CANCELLATIONS

Please let us know asap about cancellations. Registration fees will not be refunded after September 2, 2016.

WORKSHOP DATE

September 21–22, 2016

WORKSHOP LOCATION

Abbe Center of Photonics
Albert-Einstein-Straße 6
07745 Jena | Germany

Directions

Parking space is limited at the venue.
We recommend to use public transport lines.
From Jena city center use buses 10, 13, 40 and get off at ›Beutenberg Campus‹.

ORGANIZERS

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PARTNERS

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