



ACCOMMODATION | DIRECTIONS



FRAUNHOFER INSTITUTE FOR ORGANIC ELECTRONICS,
ELECTRON BEAM AND PLASMA TECHNOLOGY FEP



REGISTRATION

To register, please use the online registration form at
www.fep.fraunhofer.de/visionflat

Participation is limited, we recommend an early registration.
The registration fee includes break drinks, small lunches and the dinner on November 17, 2014.

- Registration fee 135,- €

Please transfer the amount to the following bank account:
Fraunhofer-Institut FEP, Dresden
Deutsche Bank AG, München
Konto 7521933, BLZ 700 700 10
IBAN: DE86 7007 0010 0752 1933 00
Reason for payment: Vision Flat and Invoice no.

Within 10 days, you will receive a proforma confirmation of your registration as well as the invoice via E-Mail. Your registration is valid with the incoming payment.

CONTACT

Fraunhofer FEP
Annett Arnold
Winterbergstraße 28 | 01277 Dresden
Phone +49 351 2586-333 | Fax +49 351 2586-800
events@fep.fraunhofer.de

www.fep.fraunhofer.de twitter.com/fraunhoferfep

ACCOMMODATION

Dorint Hotel Dresden
Grunaer Str. 14 | 01069 Dresden
Phone +49 351 4915 773 | Fax +49 351 4915 112
www.dorint.com

Steigenberger Hotel de Saxe
Neumarkt 9 | 01067 Dresden
Phone +49 351 4386 810 | Fax +49 351 4386 899
www.steigenberger.com

Motel One Dresden am Zwinger
Postplatz 5 | 01067 Dresden
Phone +49 351 43838 0 | Fax +49 351 43838 10
www.motel-one.com

Hotel Smetana
Schlüterstraße 25 | 01277 Dresden
Phone +49 351 256080
www.hotel-smetana.de

Azimut Hotel
Hülßestraße 1d | 01237 Dresden
Phone +49 351 7958990
www.azimuthotels.com

DIRECTIONS

Fraunhofer FEP
Winterbergstraße 28 | 01277 Dresden | Germany
Detailed directions to the Fraunhofer FEP in Dresden:
www.fep.fraunhofer.de

VISION | FLAT

Flat, Smart and Diverse

NOVEMBER 17-18, 2014 | FRAUNHOFER FEP

WORKSHOP
»COATING ON FLAT SUBSTRATES«



FOREWORD

Energy-efficient glazing is one of the central aspects of modern architecture, housing and renovation. Fraunhofer FEP's Division of Coating on Flat Substrates has been contributing to the developments in energy-efficiency over the last twenty years focusing on transparent heat-reflection, diffusion barrier layers, transparent conductive materials and related coating processes. With VISION FLAT, an international networking workshop, we offer an opportunity to strengthen scientific and business collaboration in the area of thin-film vacuum coating, glass production and architecture to address together current and future global challenges. Representatives of leading companies, Corning Inc., Saint-Gobain Glass, Schott AG and experts in this field will highlight recent technological achievements and provide an outlook on future trends. New smart products and the global increasing demand for transparent architecture are posing new requirements to the fabrication and handling of flat materials such as glass, flexible glass and polymers.

The technology session will cover the aspects of large-area, homogeneous, dynamic layer deposition, up-scaling of coating processes, in-line process monitoring, deposition of layer systems via sputtering for architectural glazing, lighting, automotive applications and optics.

As a key reference in the area of cultural preservation, the activities of the Fraunhofer FEP in renovation of historical mirrors in the Grünes Gewölbe (Green Vault) will be showcased.

The event will be accompanied by a networking dinner on the first day and entertained by the local band that will make you all swing.

Meet our experts and friends in a pleasant atmosphere and celebrate with us!



PROGRAM

November 17, 2014

13:00 Opening

Dr. Manuela Junghähnel, Fraunhofer FEP

13:05 Welcome Address

Prof. Dr. Volker Kirchhoff, Fraunhofer FEP

13:10 Diversity – Our Expertise for Innovative Thin-Film Coatings on Large Flat Substrates

Dr. Torsten Kopte, Fraunhofer FEP

13:40 Mercury-free Thin-film Tin Mirrors Produced via Magnetron Sputtering – an Alternative to Tin-amalgam Mirrors for Restoration of Historic Chambers

Prof. Dr. Gerhard Glaser, em. regional conservator for Saxony

14:10 Tradition and Innovation in the Field of Large-area Glass Coating

Hans-Christian Hecht, VON ARDENNE GmbH

14:40 Coffee Break

15:15 Chromogenic Glazings: Variable Transmittance of Visible Light and Solar Energy by Use of Electrochromics and Thermochromics

Prof. Claes G. Granqvist, Uppsala University

15:45 Adapting Nature – the Future is Light

Dr. Thomas Bickl, Heliatek GmbH

16:15 Innovative Larger-area Lighting Concepts and Technology

Dr. Christian May, Fraunhofer FEP

16:45 Architectural Visions in the Desert

Tim Laubinger, RHWL Architects

17:15 Closing of Day 1

17:30 Dinner and Celebrations

22:00 End

November 18, 2014

09:00 Learning from Domestic Work How to Avoid Glass Corrosion During Processing

Prof. Dr. Edda Rädlein, Technische Universität Ilmenau

09:30 Thin Flexible Glass Substrate for Functional Films

Dr. Kamal K. Soni, Corning Inc.

10:00 Coffee break

10:30 Ultra-thin Glass - Status and Perspectives

Dr. Rüdiger Sprengard, Schott AG

11:00 Recent Innovations in Automotive Glazings

Dr. Martin Melcher, Saint-Gobain Glass

11:30 Cost-efficient Manufacturing for Architectural Glass Coatings by Optimizing Processes and Equipment

Dr. Jutta Trube, Leybold Optics GmbH

12:00 Lunch Buffet

13:00 Customized Rotatable Targets – Potentials and Limitations

Dr. Grit Hüttel, GfE Fremat GmbH

13:20 Flat Substrate Coatings for Real Time Holographic Displays

Hagen Sahn, SeeReal Technologies GmbH

13:40 Flash Lamp Annealing of TCO Layers

Dr. Thoralf Gebel, DTF Technology GmbH

14:00 Refinement for ITO Thin Films on Flexible Glass via Dynamic Flash Lamp Annealing

Stephanie Weller, Fraunhofer FEP

14:20 An ECR Ion Source with an Integrated Sputtering Magnetron for Generating High-current Broad-beam Metal Ion Beams

PD Dr. habil. Günter Zschornack, DREEBIT GmbH

14:40 Plasma Diagnostics of a Hybrid Sputter Magnetron ECR Metal Ion Source

Tim Weichsel, Fraunhofer FEP

15:00 Closing remarks

Dr. Manuela Junghähnel, Fraunhofer FEP

15:15 Laboratory Tour

16:30 Farewell

CHAIR



Dr. Manuela Junghähnel

Dr. Manuela Junghähnel is a senior scientist with more than fifteen years of experience in development of sputtering processes, thin-film technology and new materials for large-area applications in the Division of Coating on Flat Substrates at Fraunhofer FEP, Dresden, Germany.

Main Research Topics:

- coatings on non-flexible and flexible glass
- direct current and pulse magnetron sputtering
 - metal and reactive processes
- coatings of transparent conductors on glass
 - transparent conductive oxides TCOs (indium-, zinc oxide- and titania-based etc.)
 - layer stacks based on silver and metal oxides (LowE, EMI filter)
- development of functional layers and layer stacks on flat substrates
 - antireflective or antireflective antistatic coatings (AR, ARAS)
 - heat-resistant layers
 - coatings against thermal radiation (Low-E)
 - transparent electrodes
 - mirror coatings
 - optical coatings
- refinement of thin films by ultra-fast thermal annealing