



**IUVA** – International Ultraviolet Association

**DAfP** – Deutsche Akademie für Photobiologie und Phototechnologie e.V.

**DVGW** – Deutsche Vereinigung des Gas- und Wasserfaches e.V.

**INVITE YOU TO ATTEND AND MEET AT**

**UV KARLSRUHE  
2004**

**EUROPEAN CONFERENCE  
ON UV RADIATION  
EFFECTS AND TECHNOLOGIES**

**SEPTEMBER 22 – 24, 2004**

kindly supported by



## Objective

Interdisciplinary exchange of information about science and application of ultraviolet (UV) radiation in environment, biology, medicine, chemistry, engineering and industry. The conference is of interest to scientists, technical experts, researchers, students and others concerned with UV and its applications.

Each session is introduced by a renowned expert, followed by presentations on the current state of the art. To allow attendance at all topics, sessions will be consecutive.

To highlight poster contributions, posters are introduced in the plenary session and poster presenters will be available for scheduled discussions.

Suppliers of UV related equipment and devices have an exhibition platform to present their products in the foyer of Tulla Hall.

Ample time for poster presentations and exhibition is available at breaks and lunch time on both days while lunch is served in the poster and exhibition area.

## Venue



Karlsruhe University, TULLA HALL

## Organizing Committee

W. Heering (DAfP), O. Hoyer (IUVA),  
D. Maier (DVGW), R. Jockenhöfer (DVGW),  
M. Maier (SWK), F. Oberacker † (SWK)

## Scientific Board

E. Arnold, D	N. Fox, UK
W. Heering, D	J. Metzendorf, D
A. van der Pol, NL	
D.-P. Häder, D	M. Caldwell, USA
J. van der Leun, NL	U. Obst, D
D. Schoenen, D	M. Tevini, D
J. Bolton, CAN	A. Braun, D
D. J. Lougnot, F	C. von Sonntag, D
F.-H. Frimmel, D	W. Kühn, D
O. Hoyer, D	R. Hulsley, USA
K. Linden, USA	R. Zepp, USA

## Proceedings

Printed Abstracts will be available at the conference. Complete papers will be published in the Conference Proceedings on an ISBN registered CD-ROM available later from IUVA, DAfP and DVGW.

**WEDNESDAY, SEPTEMBER 22**

from 8:00  
9:00

TULLA HALL

**Registration at the Conference Desk**  
**Pre-Conference Workshop**

**196th PTB-Workshop**

**Traceability in UV Dosimetry –  
Applications and Requirements**

**The workshop comprises five invited lectures and a panel discussion with short contributions. It covers the following topics**

- Demand for traceable measurements of UV radiation at high irradiance levels by different users in the fields of industry, health and safety, environmental protection and science
- Traceability chains for the calibration of UV standard sources, standard detectors and filter radiometers
- Development and use of radiometric standards and calibration procedures in the field of UV dosimetry at high irradiance levels
- Each lecture is followed by short contributions and discussion

Short contributions to the panel discussion (max. 5 min) must be submitted before September 1<sup>st</sup> to Prof. Dr. Jürgen Metzdorf, PTB Braunschweig: [juergen.metzdorf@ptb.de](mailto:juergen.metzdorf@ptb.de)

**Workshop Lectures**

9:00

W. Heering

Goniophotometric measurements on high power UV lamps

10:00

R. Dreiskämper

Measurement of radiant performance of UV sources

11:00

F. P. Wieringa

Measurement and assessment of radiation exposures by artificial UV sources in the workplace, according to EN 14255-1

12:00

**Lunch**

13:30

A. Gugg-Helminger

Spectral matching of actinic functions, spectral mismatch correction factors and calibration of UV detectors

14:30

J. Metzdorf

Traceability of UV radiation measurements at high levels

15:30

**End of Workshop**

**WEDNESDAY, SEPTEMBER 22**

16:30	<b>Moderation by M. Tevini</b>	<b>Opening of the Conference and Review Lectures</b> <b>Opening Addresses – Public Plenary Lectures</b> <b>Ultraviolet Light – A Part of Our Life and World</b>
17:00	F. de Gruijl, NL	UV Radiation and Health
17:40	D.-P. Haeder, D	UV Effects in Aquatic Ecosystems
18:20	J. C. van der Leun, NL	Ozone Depletion, Climate Change and Photobiology
19:00	R. G. Zepp, USA	Light and Environmental Chemistry: Influence of Changing Solar UV Radiation on Aquatic Photoreactions
19:40		<b>Welcome Reception</b>

**THURSDAY, SEPTEMBER 23**

from 8:00	<b>TULLA HALL</b>	<b>Registration at the Conference Desk</b>
8:15		<b>Welcome by the Mayor of Karlsruhe</b>
8:30	<b>N. Fox</b>	<b>Measurement of UV Radiation – Methods and Uncertainties</b>
9:00	L. Werner	PTB Detector Calibration and Characterization Capabilities in the UV and VUV
9:20	P. Sperfeld	A new secondary UV standard of spectral irradiance based on a deuterium lamp system
9:40	A. Gugg-Helminger	New reliable devices measuring UV radiation
10:00	U. Feister	Fast scans of solar spectral UV irradiance using new types UV spectroradiometers
10:20	A. Gottwald A. Kaifel	<b>Discussion and Poster Intro</b> Ultraviolet and beyond – Metrology with synchrotron radiation UV-Spectroradiometer on Filter-Model-Basis
10:30		<b>Break</b>
11:00	<b>W. Heering</b>	<b>UV Sources – Basics, Properties and Applications</b>
11:30	D. Fassler	New Sources for the short UV – Design, Emissions, Actinometry
11:50	M. Zwegers	Applications of dielectric barrier discharge eximer lamps
12:10	M. Sasges	Accurate Measurement of UV Lamp Output
12:30	M. Sasges	<b>Discussion and Poster Intro</b> Effect of the Driving Waveform on the UVC Output of a Medium-Pressure Mercury-Vapor Lamp
12:40		<b>Lunch, Poster + Exhibition</b>

14:00	<b>D. F. Eaton</b>	<b>Photopolymers – An Enabler of Industrial Innovation</b>
14:30	J. Schroeter	Screening effects in UV lacquers by UV-generated radicals
14:50	P. Henzi	UV-Induced Modification of Dielectric Properties of Polymers for Photonic Applications
15:10	J. Salas Vicente	Surface Modification of Polystyrene Particles by VUV-photochemical Initiated Oxidation
15:30	M. Heise	Decontamination of polymer foils with a combined UV-plasma source at atmospheric pressure
15:50	R. Truckenmueller	<b>Discussion and Poster Intro</b> UV Degradation Supported Bonding of Polymer Micro- and Nanostructures
	A. Welle	Photochemical polymer surface patterning controlling cell adhesion
16:00		<b>Break</b>
16:30	D. Maier, L. Neumann	Research into Formation of Hydrogen Peroxide caused by UV Radiation of Water with and without Ingredients
16:50	M. Wörner	Combination of VUV-Photolysis and Electrolysis to Establish a Satisfactory Oxygen Logistics Beyond Limitations Imposed by Diffusion
17:10	J. Lopez Gejo	<b>Discussion and Poster Intro</b> VUV-photochemically initiated oxidative degradation of thiophene in the gas phase
	D. Maier	Treatment of Fountain water with UV-radiation
	M. Soerensen	Modern UV-oxidation with the Enviolet-Technology of a.c.k. Aqua Concept
	V. Diyamandoglu	The Photo-induced Oxidation of Aqueous Ammonia under UV Light at 253.7 nm in the Presence of Halide Ions
17:30		<b>Poster + Exhibition</b>
19:00		<b>City Reception</b>

## FRIDAY, SEPTEMBER 24

from 8:00	<b>TULLA HALL</b>	<b>Registration at the Conference Desk</b>
8:30	<b>J. Bolton</b>	<b>Photochemical Technologies for Water Purification and Remediation</b>
9:00	J. H. Lee	Photo-degradation and Hydroxyl Radical Rate Constant of NDMA in the UV/H <sub>2</sub> O <sub>2</sub> Process
9:20	K. Linden	UV and UV/ H <sub>2</sub> O <sub>2</sub> degradation and subsequent toxicity of endocrine disrupting chemicals in water
9:40	T. Doll	Removal of Persistent Pollutants in the Environment – Photodegradation by simulated solar UV light – Determination of reaction pathways and identification of intermediates

10:00	J. Eggers	Remediation of groundwater from a former gas works site: treatment of a PAH (Polynuclear Aromatic Hydrocarbon) and VC (Vinyl Chloride) contamination using UV Light
10:20	C. Baus	<b>Discussion and Poster Intro</b> Effective Treatment of Persistent Organic Pollutants by UV Oxidation and UV-Induced AOP
	C. R. Centeno	Degradation of Polychlorinated Biphenyls in Water Matrix using the UV/H <sub>2</sub> O <sub>2</sub> system
	T. Yonar	Photochemical Treatability Studies on Olive Oil Mill Effluents (OOME), Leachate and Polyester and Acetate Fiber Dyeing Effluents
10:40		<b>Break</b>
11:10	<b>C. von Sonntag</b>	<b>The Photochemical Bases of UV-Disinfection</b>
11:40	C. Jungfer	Influence of UV Disinfection on Molecular Stress Mechanisms of Bacteria
12:00	A. Esveld- Amanatidou	Spores of Sulphite Reducing Clostridia as an alternative indicator for UV disinfection efficiency in drinking water supply
12:20	A. P. Fluegge	<b>Discussion and Poster Intro</b> Influence of different UV-light created by a new UV-source based on microwave irradiated Plasma on bacteria in real waste water
	T. Schwartz	UV disinfection alters the physiological properties of biofilms in a public drinking water distribution system
	S. Speer	Design and Operation of a Medium-Pressure UV System for Air Disinfection in an Office Building
12:40		<b>Lunch, Poster + Exhibition</b>
14:00	<b>O. Hoyer</b>	<b>Water Disinfection with UV Radiation – Requirements and Realization</b>
14:30	C. Bassin	Collimated Beam Apparatus for the Standardised Determination of UV-Fluence (-rate)
14:50	H. Wright	Impact of UV Sensor Properties on Dose Delivery Monitoring by UV Disinfection Systems
15:10		<b>Discussion</b>
15:20		<b>Break</b>
15:50	Z. Bukhari	Examining usefulness of commercial UV reactors for disinfection of finished water
16:10	A. Kolch	USA and Europe: Two different worlds of UV for drinking water disinfection?
16:30	L. Dinkloh	UV Disinfection Design acc. to 2003 NWRI/AWWARF UV Guidelines Challenges for Design Engineers
16:50	M. Valade	The Plan for New York City's UV Disinfection System Validation
17:10		<b>Discussion</b>
17:20		<b>Closing Remarks</b>
19:30		<b>Riverboat Shuffle</b>

## Registration Fees

**PTB-Workshop only** € 50.–

### Complete Conference

Before 15-Jul-04 € 350.–

Before 15-Aug-04 € 400.–

After 15-Aug-04 € 450.–

Members of IUVA, DAFp and DVGW  
get a 50.– € reduction.

Accompanying persons € 100.–

Students € 50.–

Fees include workshop and conference, proceedings, events with food and beverages plus a public transportation pass for the 3 days.

## Conference Office-Registration

Please use attached fax-form to register.

UV-Karlsruhe 2004  
c/o DVGW-Kommunikation  
Postfach 140362, D-53058 Bonn

Tel. +49(0)228-9188-604  
Fax +49(0)228-9188-990  
uv-karlsruhe-2004@dvgw.de

## Travel and Accommodation

Karlsruhe is accessible by railway [www.bahn.de](http://www.bahn.de).

Nearest airport with railway station is Frankfurt [www.frankfurt-airport.de](http://www.frankfurt-airport.de).

### Hotel Reservation

KMKG Tourist Information  
Festplatz 9  
D-76137 Karlsruhe

Tel. +49(0)721-3720-5390  
Fax +49(0)721-3720-5399  
[www.kmkg.de](http://www.kmkg.de) Code: UV-Karlsruhe-2004

## Exhibition and Sponsoring

Consultants on UV-technology and suppliers of UV related equipment and devices are invited to present their products in the foyer below the auditorium or to place advertisements in the conference papers. Sponsoring will be acknowledged on screen during the breaks.

For exhibition and sponsoring please contact  
O. Hoyer via [uv-karlsruhe-2004@wahnbach.de](mailto:uv-karlsruhe-2004@wahnbach.de)

**Meet with us!** [www.iuva.org](http://www.iuva.org) [www.dafp.de](http://www.dafp.de) [www.dvgw.de](http://www.dvgw.de) [www.karlsruhe.de](http://www.karlsruhe.de)

Please fax this form to +49(0)228-9188-990 or e-mail to uv-karlsruhe-2004@dvgw.de.  
(pdf-File: www.dvgw.de)

Registration will be confirmed.  
Contact: **Petra Salz Tel. +49(0)228-9188-604**

Please print in bold letters

Name: \_\_\_\_\_ Title: \_\_\_\_\_

First name: \_\_\_\_\_

Member of: \_\_\_\_\_ Member No.: \_\_\_\_\_

Institute / Firm: \_\_\_\_\_

Street: \_\_\_\_\_

City Code: \_\_\_\_\_ City: \_\_\_\_\_

Country: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Phone / Fax: \_\_\_\_\_

Accompanied by: \_\_\_\_\_

## Registration for:

- PTB-Workshop **only**  Complete Conference  
 Accompanying person  Student

Fees include workshop and conference, proceedings, events with food and beverages plus a public transportation pass for the 3 days.

## Method of payment:

- Bank transfer** (On receipt of DVGW-invoice)  
 **Credit card**  Visa  Master valid until: \_\_\_\_\_

Credit card owner: \_\_\_\_\_

Credit card number:

CVV2/CVC2

Please do not forget to state CVV2 / CVC2-Number (on the back of your credit card).  
Without this number we cannot charge the registration fee to your account.

Date

Signature