



# ICCG 12

THE 12<sup>TH</sup> INTERNATIONAL

# CONFERENCE ON COATINGS ON GLASS AND PLASTICS

Advanced coatings for large-area  
or high-volume products

**JUNE 11-15, 2018**

Conference Center Würzburg,  
Germany · [www.iccg12.de](http://www.iccg12.de)

Organized by  
International Organizing Committee of ICCG  
Fraunhofer Institute for Silicate Research ISC  
Vincentz Network



# The 12<sup>th</sup> International Conference on Coatings on Glass and Plastics

The application of coatings onto glass and plastics is generally of major importance to create value-added products. Large area deposition of inorganic materials under atmospheric or vacuum conditions has become the basis of energy savings, harvesting, and storage. Optical thin films dominate the market in consumer electronics and communication networks.

Emerging markets and new business opportunities for high volume products rely on coatings on flexible substrates generated either through plasma enhanced processes or wet chemical deposition techniques.

Advanced materials and hybrid nanocomposites present further options to create multifunctional and even active surfaces contributing to the success of high-tech products and services.

The 12<sup>th</sup> International Conference on Coatings on Glass and Plastics will highlight these international market trends, discuss new relevant materials and deposition technologies. Whether during the conference breaks, the poster session, networking reception, B2B-meetings or at the accompanying exhibition, the ICCG12 offers several networking opportunities. We will bring together experts from science and industry as well as various stakeholders shaping the future of surfaces and coatings.

*See you in Würzburg!*





# At a glance

## Monday, June 11, 2018

- 13:00 – 18:00 **Short courses, Fraunhofer-Institute for Silicate Research ISC**
- 19:30 **Welcome reception, Restaurant Alter Kranen**

## Tuesday, June 12, 2018

- 08:30 – 12:00 **Introductory session**
- 10:10 – 10:40 **Coffee break**
- 12:00 – 13:20 **Lunch**
- 13:20 – 15:20 **Introductory session**
- 15:20 – 15:50 **Coffee break**
- 15:50 – 18:20 **Technical session 1: Advanced vacuum processes**
- Free evening**

## Wednesday, June 13, 2018

- 08:30 – 10:25 **Technical session 2: Atmospheric pressure processes**
- 10:25 - 10:55 **Coffee break**
- 10:55 – 12:25 **Technical session 3: Film growth, metrology, process control, simulation**
- 12:25 – 13:55 **Lunch**
- 13:55 – 15:40 **Technical session 3: Film growth, metrology, process control, simulation**
- 15:40 - 16:10 **Coffee break**
- 16:10 – 18:05 **Technical session 4: Energy conversion, lighting, displays**
- 18:05 – 20:00 **Afterwork reception, Poster session, Innovation talks, B2B meetings**

## Thursday, June 14, 2018

- 08:30 – 10:25 **Technical session 5: Optics, sensors, life sciences, packaging**
- 10:25 - 11:00 **Coffee break**
- 11:00 – 11:50 **Technical session 6: Architectural and automotive glazing**
- 11:50 – 13:30 **Lunch**
- 13:30 – 14:55 **Technical session 6: Architectural and automotive glazing**
- 14:55 – 15:15 **Coffee break**
- 15:15 – 16:45 **Panel discussion**
- 16:45 – 17:00 **Closing ceremony: Summary, presentation of next ICCG, flag handover**
- 18:00 – 18:45 **Boat trip Würzburg – Veitshöchheim (Mainfrankensäle)**
- 19:00 **Conference Dinner, Award Ceremonies**

## Friday, June 15, 2018

- 08:30 – 14:30 **Company tours**

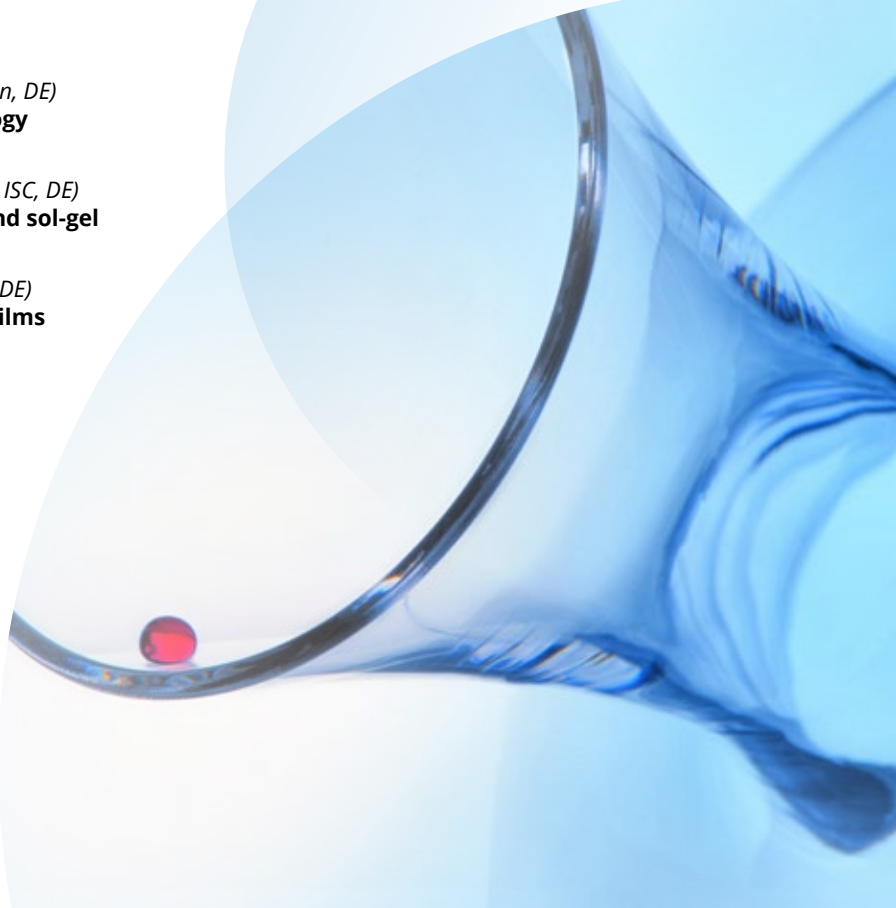


## Short courses Monday, June 11, 2018

### Location:

Fraunhofer-Institute for Silicate Research ISC,  
Neunerplatz 2, Würzburg  
Chair: *Dr. Gerhard Schottner*

- 13:00 – 13:15     **Registration**
- 13:15 – 13:45     **Facility tours at Fraunhofer ISC**  
(R2R coating machines, high resolution  
thin film characterization)
- 14:00 – 14:45     *Dr. Manuela Junghänel*  
(Fraunhofer FEP, DE)  
**Processing on ultra-thin flexible glass**
- 14:45 – 15:30     *Ric Shimshock (MLD Technologies, US)*  
**Flexible electronics and organic  
photovoltaics**
- 15:30 – 15:45     **Coffee break**
- 15:45 – 16:30     *Prof. Dr. Bernd Szyszka (TU Berlin, DE)*  
**Vacuum deposition technology  
and thin film photovoltaics**
- 16:30 – 17:15     *Dr. Karl-Heinz Haas (Fraunhofer ISC, DE)*  
**Chemical nanotechnology and sol-gel  
coatings**
- 17:15 – 18:00     *Dr. Uwe Posset (Fraunhofer ISC, DE)*  
**Electrically switchable thin films  
and devices**
- 19:30             **Welcome reception,  
Restaurant Alter Kranen,  
Kranenkai 1, Würzburg**



## Scientific program Tuesday, June 12, 2018

### Location:

Congress Center Würzburg (CCW)  
Kranenkai 34, Würzburg

### Introductory session

Chairs: *Dr. Koichi Suzuki, Jorma Vitkala*

- 08:30 – 08:45 *Prof. Dr. Gerhard Sextl,  
Prof. Dr. Günter Bräuer, Dr. Koichi Suzuki*  
**Welcome address, Opening addresses**
- 08:45 – 09:30 *Michael Robinson (ED Group, IT)*  
**Disruptive digital glass**
- 09:30 – 10:10 *Dr. Wilma Dewald (Volkswagen, DE)*  
**Glass coatings for automotive applications**
- 10:10 – 10:40 **Coffee break**
- 10:40 – 11:20 *Prof. Dr. Şener Oktik (Şişecam, TR)*  
**Global business and market opportunities for architectural and automotive glass glazing**
- 11:20 – 12:00 *Prof. MunPyo Hong (Korea University, KO)*  
**Emerging display technologies**
- 12:00 – 13:20 **Lunch break**
- 13:20 – 14:00 *Thomas Kolbusch (Coatema Machinery, DE)*  
**Market and emerging business in roll-to-roll large area printed electronics**
- 14:00 – 14:40 *Prof. Ali Harlin  
(VTT Technical Research Center, FI)*  
**The future of food packaging**
- 14:40 – 15:20 *Karim Zaghbi  
(Research Center Hydro Quebec, CA)*  
**The future of driving and batteries for electric vehicles**
- 15:20 – 15:50 **Coffee break**

### Technical session 1: Advanced vacuum processes

Chairs: *Prof. Dr. Günther Bräuer, Dr. Johannes Strümpfel*

- 15:50 – 16:20 Keynote lecture  
*Dr. Michael Liehr (W+L Coating-Systems, DE)*  
**The route towards mass production of vertical graphene with microwave PECVD**
- 16:20 – 16:40 *Dr. Volker Sittinger (Fraunhofer IST, DE)*  
**Anti-reflective coatings deposited by HWCVD process on glass and plastics**
- 16:40 – 17:00 *Prof. Dr. Jaroslav Vlcek  
(NITS, University of West Bohemia, CZ)*  
**Controlled reactive HiPIMS – effective technique for low-temperature deposition of functional oxide films**
- 17:00 – 17:20 *Dr. Sebastian Gatz (Meyer Burger, DE)*  
**Advanced PECVD processes for large-area coatings on plastics and glasses**
- 17:20 – 17:40 *Dr. Stefan Merli  
(IGVP/University of Stuttgart, DE)*  
**High rate deposition of protective coatings with microwave PECVD**
- 17:40 – 18:00 *Dr. Kerstin Täschner (Fraunhofer FEP, DE)*  
**Influence of rf substrate bias on density and mechanical properties of sputtered SiO<sub>2</sub> thin films for SAW applications**
- 18:00 – 18:20 *Dr. Roland Trassl,  
(Applied Materials WEB Coating, DE)*  
**Roll-to-roll PVD coatings for optical and electronic applications**

Free evening

## Scientific program

### Wednesday, June 13

#### Technical session 2: Atmospheric pressure processes

Chairs: Mr. Karel Spee, Dr. Jörg Pütz

- 08:30 – 09:00 **Keynote lecture –**  
*Dr. Vladimir Shiripov (Izovac, BY)*  
**Langmuir-Blodgett method-based technology for photovoltaics and displays chemo-mechanical and oleophobic protection**
- 09:00 – 09:25 **Invited lecture – Prof. Dr. Fred Roozeboom**  
*(Eindhoven, University of Technology, NL)*  
**ALD etching and ALD patterned deposition**
- 09:25 – 09:45 *Maalolan Ramanujam*  
*(Maan Research&Development, NL)*  
**Atmospheric pressure SDBD plasma treatment for printed electronics applications**
- 09:45 – 10:05 *Dr. Klaus Rose (Fraunhofer ISC, DE)*  
**Novel electrically conductive hybrid coatings for direct electroplating**
- 10:05 – 10:25 *Dr. Kohei Masuda (Shinetsu, JP)*  
**Self-orientation of radiation curable coating films**
- 10:25 – 10:55 [Coffee break](#)

#### Technical session 3: Film growth, metrology, process control, simulation

Chairs: Dr. Eveline Rudigier-Voigt, Ric Shimshock, Prof. Dr. Bernd Szyzka

- 10:55 – 11:25 **Keynote lecture –**  
*Prof. Dr. Eric C. Neyts (University of Antwerp, BE)*  
**On the time scale associated with Monte Carlo simulations**
- 11:25 – 11:45 *Dr. Moritz Heintze (Trumpf, DE)*  
**Transition mode sputtering of Al<sub>2</sub>O<sub>3</sub> – hysteresis and process stability of large Al targets**
- 11:45 – 12:05 *Hans Oerley (Dr. Schenk, DE)*  
**Optical In-line metrology systems for displays – man-machine-interface for mobile devices and car displays**
- 12:05 – 12:25 *Dr. Sinem Eraslan (Şişecam, TY)*  
**Effect of ZnO seed layer deposition parameters on Ag based multilayer thin film properties**
- 12:25 – 13:55 [Lunch break](#)

- 13:55 – 14:20 **Invited lecture –**  
*Dr. Thomas Unold (Helmholtz Center Berlin, DE)*  
**Observation of structural and optical properties during the growth of compound semiconductor materials**
- 14:20 – 14:40 *Dr. Peter van Nijnatten (OMT Solutions, NL)*  
**Laboratory intercomparison on angle dependent transmittance and reflectance measurements and associated colour values of coated glazing**
- 14:40 – 15:00 *Dr. Jens Harhausen (Leibniz Institute for Plasma Science and Technology, DE)*  
**Novel concepts for in-situ characterisation and control of plasma ion assisted deposition processes**
- 15:00 – 15:20 *Dr. Wolfgang Theiss (WTheiss Hardware and Software, DE)*  
**Up and down – shifting the limits of optical spectroscopy in large area coaters**
- 15:20 – 15:40 *Yung Lin Chang (Optoron, JP)*  
**Absorption mechanism of amorphous DLC applied on infrared pass filter**
- 15:40 – 16:10 [Coffee break](#)

#### Technical session 4: Energy conversion, lighting, displays

Chairs: Dr. Manuela Junghänel, Dmitriy Bernt

- 16:10 – 16:40 **Keynote lecture –**  
*Dr. Ronn Andriessen (Solliance/TNO, NL)*  
**S2S and R2R production processes for perovskite based PV modules**
- 16:40 – 17:05 **Invited lecture –**  
*Dr. Ana Jung (Physee, NL)*  
**GlasSkin – PV integrated in window panes**
- 17:05 – 17:25 *Dr. Steffen Cornelius*  
*(Delft University of Technology, NL)*  
**Photochromic rare-earth oxy-hydrides - a potential coating material for energy saving smart windows**
- 17:25 – 17:45 *Dr. Helena Aguilar (CeNTI – Centre for Nanotechnology and Smart Materials Industry, PT)*  
**Hybrid materials for solar energy harvesting and sustainable building integrated systems**
- 17:45 – 18:05 *Dongxiang Wang (Fraunhofer FEP, DE)*  
**Segmented transparent OLED devices on ultra-thin glass**
- 18:05 – 20:00 **Afterwork reception, Poster session, Innovation talks, B2B meetings**

## Scientific program Thursday, June 14, 2018

### Technical session 5:

#### Optics, sensors, life sciences, packaging

Chairs: *Dr. Georg Ockenfuss, Prof. Dr. Yuzo Shigesato*

- 08:30 – 09:00 **Keynote lecture –**  
*Markus Bilger (VIAVI Solutions, US)*  
**The growing impact of photonics in consumer electronics and automotive markets**
- 09:00 – 09:25 **Invited lecture**  
*Dr. Sabine Amberg-Schwab (Fraunhofer ISC, DE)*  
**Packaging based on bio-ORMOCER®s**
- 09:25 – 09:45 *Dr. Luca Gautero (Meyer Burger, NL)*  
**Maturity of moisture barriers for large volume production**
- 09:45 – 10:05 *Dr. Pavel Bartovský (AIMPLAS, ES)*  
**Innovative coatings for advanced applications**
- 10:05 – 10:25 *Prof. Dr. Doris Heinrich (University of Leiden, NL)*  
**Functionalised surfaces and 3D scaffolds for controlled cell adhesion, migration and tissue engineering**
- 10:25 – 11:00 **Coffee break**

### Technical session 6:

#### Architectural and automotive glazing

Chairs: *Prof. Dr. Şener Oktik, Dr. Roland Thielsch*

- 11:00 – 11:30 **Keynote lecture –**  
*Dr. Christian Stoessel (Eastman Chemical, US)*  
**Optical coatings for automotive and building applications**
- 11:30 – 11:50 *Timo Saukko (finnglass, FI)*  
**Electrically heatable low-E glass**
- 11:50 – 13:30 **Lunch Break**
- 13:30 – 13:55 **Invited lecture –**  
*Dr. Carl Maywald (Vector Foiltec, DE)*  
**Coating of ETFE – solar shading for architectural applications**

- 13:55 – 14:15 *Dr. John Fahlteich (Fraunhofer FEP, DE)*  
**Vacuum coating on polymer films for outdoor applications**
- 14:15 – 14:35 *Dr. Öcal Tuna (Şişecam, TY)*  
**The effect of sputtering growth parameters on the electrochromic properties of WO<sub>3</sub> thin films grown on Ga-doped Zinc oxide**
- 14:35 – 14:55 *Dr. Xiaohu Huang (Institute of Materials Research and Engineering IMRE, SG)*  
**Spectrum-selective and photocatalytic coating towards smart glass**
- 14:55 – 15:15 **Coffee break**
- 15:15 – 16:45 **Panel discussion**  
Moderator: *Thomas Hegemann*  
Participants: *Michael Robinson, Karim Zaghbi, Markus Bilger*
- 16:45 – 17:00 **Closing ceremony: Summary, presentation of next ICCG, flag handover**  
*Dr. Koichi Suzuki (SurFtech Transnational, JP), Prof. Dr. Günther Bräuer (Fraunhofer IST, DE)*
- 18:00 – 18:45 **Boat trip Würzburg – Veitshöchheim**  
(Mainfrankensäle)
- 19:00 **Conference Dinner, Award Ceremonies**

## Company tours Friday, June 15, 2018

- 08:30 – 14:30 **Applied Materials, Alzenau**  
Shuttle busses will be offered at the CCW directly to Alzenau and back. (Pre-registration is required)
- 09:00 – 13:00 **Fraunhofer-Institute for Silicate Research ISC**  
(Pre-registration is required)

# Exhibition

On Tuesday, Wednesday and Thursday companies and institutes will have the opportunity to present their equipment, products and materials within the technical exhibition.

Our new exhibition concept fosters the idea of networking with prearranged B2B Meetings/Innovation talks/Mini-workshops and a networking reception within the exhibition on Wednesday.

Please find the application form for exhibitors and further information online at:

[www.iccg12.de/exhibition](http://www.iccg12.de/exhibition)

## Exhibition fees

Type	Size	Description	€
<b>Basic booth</b>	1 m <sup>2</sup>	2 walls for posters (2.5 m high), 1 small table for brochures, etc.	1,950
<b>Complete booth</b>	6 m <sup>2</sup> (2 x 3 m)	system booth (2.5 m high), 1 table, 2 chairs, spotlights, 1 fascia, installation, dismantling, cleaning	3,400
	12 m <sup>2</sup> (4 x 3 m)	system booth (2.5 m high), 1 table, 2 chairs, spotlights, 1 fascia, installation, dismantling, cleaning	5,600
<b>Own booth</b>	6 m <sup>2</sup> (2 x 3 m)		2,600

(exhibition open June 12-14, 2018)

Additional furniture, decoration, technical services or booth sizes: on request.

## Sponsorship opportunities

Type	production excluded* €	production included €
<b>Conference materials</b>		
Branding one of these items will put your company logo in focus at all times!		
<b>Lanyards</b>	1,500	2,500
<b>Folders</b>	1,500	2,500
<b>Notepads</b>	1,500	2,500
<b>Pencils</b>	1,500	2,500
<b>Conference bags</b>	1,750	2,750
<b>Promotional flyer for conference bags</b>	1,000	-
<b>Catering</b>		
During the 3-day conference, multiple coffee breaks as well as 3 lunch breaks will be offered to the conference delegates. Your sponsorship will be acknowledged on-site (table menus, roll-up posters).		
<b>Lunch break</b>	2,500	-
<b>Coffee break</b>	2,500	-
<b>WI-FI</b>		
Provide premium Wi-Fi for all conference delegates. The password will be named after your company name and/or products.		
<b>Wi-Fi</b>	1,500	-

Logo file/materials due: May 25, 2018

\*Required amount: approx. 400



# General information

## Venue

Congress Center Würzburg (CCW)  
Kranenkai 34, 97070 Würzburg, Germany

## Accommodation

Hotel accommodation is not included in the conference fee. We offer you a wide selection of hotels to choose from. Please complete your reservation online at: [www.iccg12.de/location/hotel](http://www.iccg12.de/location/hotel)

## Conference fees

Full conference	Until April 15, 2018	From April 16, 2018
Regular	€ 850	€ 1.100
Speaker	€ 800	€ 800
Students	€ 350	€ 450
Students presenting	€ 275	€ 275

Single day	Until April 15, 2018	From April 16, 2018
Regular	€ 390	€ 490
Students	€ 100	€ 100
Accompanying person	€ 200	€ 250

## Short Courses

Regular	€ 280	€ 350
Students	free	free

## Conference fees include

Lunch & coffee breaks · social events · proceedings

## Exhibitor registration

Lunch & coffee breaks · social events · proceedings

## Exhibitor registration

Please find the application form for exhibitors and further information online at:

[www.iccg12.de/exhibition](http://www.iccg12.de/exhibition)

## Social programme

Located on both banks of the river Main, the city of Würzburg is an inviting venue. The lovely historic center offers ample meeting opportunities to continue discussions outside the conference rooms. During the ICCG 12, two other events are hosted in Würzburg city center: the 2018 German Landesgartenschau (a State Horticultural Show) and the Mozart Festival. This is your chance to combine three high-class events at the same time. Consider this excellent opportunity to stay an extra day to see it all. For further information please visit:

[www.iccg12.de/program/social](http://www.iccg12.de/program/social)



## International organizing committee

Chairman: Prof. Dr. G. Bräuer, Fraunhofer IST, *Germany*  
Secretary: Dr. K. Suzuki, SurFtech Transnational Co., Ltd., *Japan*  
Vice Chair: Mr. K. Spee, Solliance / TNO, *The Netherlands*  
Editorial Chairman: Dr. J. Pütz, Carl Zeiss Vision Int. GmbH, *Germany*  
Mr. D. Bernt, Pilkington Glass RUS&CIS, *Russia*  
Dr. W. De Bosscher, Soleras Advanced Coatings, *Belgium*  
Dr. V. Geyer, Scheuten Glassgroup, *The Netherlands*  
Dr. K. Hartig, Cardinal Glass Industries, *USA*  
Dr. M. Junghähnel, Fraunhofer FEP, *Germany*  
Dr. E. Rudigier-Voigt, SCHOTT AG, *Germany*  
Prof. Dr. N. Kaiser, Fraunhofer IOF, *Germany*  
Dr. H. M. Kang, KCC, *Korea*  
Mr. K. Kato, Central Glass Co., Ltd., *Japan*  
Dr. J. Kuncova-Kallio, BioNavis Ltd., *Finland*  
Dr. M. Liehr, W&L Coating Systems GmbH, *Germany*  
Mr. K. Maeshige, Asahi Glass Co., Ltd., *Japan*  
Dr. M. Mennig, mm.nanoconsulting, *Germany*  
Dr. K. Nagamoto, Lintec Co., Ltd., *Japan*  
Dr. G. Ockenfuß, Viavi Solutions Inc., *USA*  
Prof. Dr. S. Oktik, ŞİŞECAM, *Turkey*  
Dr. Y. Saito, Nippon Sheet Glass Co., Ltd., *Japan*  
Dr. G. Schottner, Fraunhofer ISC, *Germany*  
Prof. Dr. Y. Shigesato, Aoyama Gakuin University, *Japan*  
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Mr. J. Vitkala, Glaston Oy, *Finland*  
Dr. S. Wang, Institute of Materials Research and Engineering, *Singapore*  
Prof. Dr. H. Ye, Zhejiang University, *China*

## Local organizing committee

Director of Fraunhofer ISC: Prof. Dr. G. Sextl  
Local Chairman: Dr. G. Schottner  
Local Secretary: S. Herold  
Local Editorial Chairman: Dr. U. Posset  
Local Organizing Team: S. Rota,  
K. Wilger, M. Schürmeyer

## Supported by

Deutsche Glastechnische Gesellschaft (DGG), *Germany*  
Glass Innovation Institute (GII), *Finland*  
Glass Performance Days (GPD), *Finland*  
Glass Worldwide, *UK*  
Plasma Germany, *Germany*  
Society of Vacuum Coaters (SVC), *USA*  
The Materials Research Society of Japan  
The Vacuum Society of Japan  
The Japan Society of Applied Physics  
The Physical Society of Japan  
The Ceramic Society of Japan

## Your key contacts

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# ICCG 12

Register online at:  
[www.iccg12.de/registration](http://www.iccg12.de/registration)

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