

BERLIN ELECTROLYSER CONFERENCE

07-08 December 2022 | Berlin, Germany

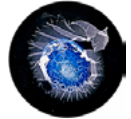
We would like to thank our previous speakers & guests:





BERLIN ELECTROLYSER CONFERENCE 2022

07-08 December 2022 | Berlin, Germany



The **deployment of large-scale electrolysers** is the **key technological element for the decarbonisation of central industrial and transport sectors**. The existing electrolyser technology is now ready for a massive scale-up: In May 2022, the EU Commission and 20 leading industry representatives signed a Joint Declaration to announce the commitment to a tenfold increase of the industry's electrolyser manufacturing capacities by 2025, targeting an annual production of 10 million tons of renewable hydrogen by 2030 in the European Union. To achieve this ambitious objective, considerable challenges have to be overcome by **system manufacturers, providers of components and materials, industrial users of electrolysers and other stakeholders** within the hydrogen economy.

The Berlin Electrolyser Conference (BEC) was founded in 2020 and launched as **"Next Generation Electrolysers"** virtual event in December 2020 and again 2021. Our mission is to bring together electrolyser specialists, engineering experts, scientific researchers and other stakeholders along the electrolyser value chain to discuss the development, manufacturing, deployment and integration of the next generation of industrial electrolysers.

We look forward to seeing you!

RedCabin GmbH

PARTNERS



THE KEY OBJECTIVES OF THIS SUMMIT

LEARN ...

... how to scale up **electrolyser units**, their different **technologies** and **manufacturing processes**

DISCUSS ...

... how to **increase efficiency and cut costs** by improving electrolyser design, materials and components, and balance of plant (BoP).

EXPLORE ...

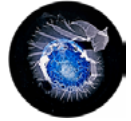
... how to **integrate large electrolysers** into renewable systems, plants, processes and value chains to scale up their industrial application.

ENLARGE ...

... your network with **industry experts** from all parts of the electrolyser value chain and learn from each other.

For further information, sponsorship or delegate registration please contact:

Erutode Rume, erutode.rume@redcabin.de | Office: +49 30 99 40 489 11 | Mobile: +49 162 256 738 2



CONFIRMED SPEAKERS

CHAIRMAN OF BEC

BRUNO G. POLLET

President, Green Hydrogen Division IAHE/
current member of the Council of Engineers
for the Energy Transition under the auspices
of the UN Secretary-General



FOUNDER OF BEC

BERND HAMACHER

Blue Delta international conferences

Blue Delta

STEPHAN REIMELT

Senior Advisor Germany
Bloom Energy, USA



CHRISTOPH ZAHN

Sales Manager
Cummins, Belgium



OLIVER POSDZIECH

VP Large Systems Development
Sunfire, Germany



LENNART VAN DER BURG

Program & Business
Development Manager Renewable Hydrogen
TNO, The Netherlands



PETER HOLZAPFEL

Consultant Hydrogen Market
Siemens AG, Germany



PHILIP HAINBACH

Chief Governance Officer
Enapter, Germany



NICK VAN DIJK

CEO and CTO
Oort Energy, United Kingdom



DAVID HODGSON

Managing Director
TFP Hydrogen Products Ltd, UK



PETER ELLIS

Technology Director, Green Hydrogen
Johnson Matthey



MATTIJS SLEE

CEO
Battolyser Systems, The Netherlands



TONYA SILLS

Quality Engineering
APR Energy, USA



VOLKER GÖKE

Head of Product
Management
ITM Linde Electrolysis, Germany



HELMUT LADEMANN

General Manager
R2 Intelligent Technologies GmbH, Germany



JULIA REITH

European Business Director Hydrogen
Schneider Electric



CARSTEN KRAUSE

Managing Director
Elogen GmbH, Germany



VOLKER HÄCKH

Consultant
Lhyfe, France



ARTJOM MALJUSCH

Head of Innovation Domain AEM | CREAVIS
Evonik Operations, Germany



THIJS DE GROOT

Technology Developer
HyCC, The Netherlands



VLADIMIR LINKOV

Director
South African Institute for Advanced
Materials Chemistry UWC, South Africa



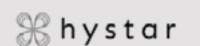
ROBERT SEEHAWER

Managing Director
AquaVentus



ALEJANDRO O. BARNETT

CTO and Co-founder
Hystar, Norway



For further information, sponsorship or delegate registration please contact:

Erutode Rume, erutode.rume@redcabin.de | Office: +49 30 99 40 489 11 | Mobile: +49 162 256 738 2



SPONSORS



TFP Hydrogen is a leading supplier and developer of coatings for PEM electrolyser components such as porous transport layers (PTLs) and bipolar plates. These coatings enable the electrolyser to operate at a low voltage, increasing efficiency and extending lifetime – reducing the long term cost of green hydrogen production.

TFP Hydrogen also produce cost effective catalysts which increase performance and improve long term system durability, as well as a nonwoven GDL substrate used extensively in hydrogen fuel cells worldwide. TFP Hydrogen is a global business, with sites in the UK and USA and a worldwide sales and support network, the company prides itself on being the expert in their field; developing and manufacturing high quality, specialized materials using scalable technology which can support rapid growth.

For more information please check www.tfphydrogen.com.



Ames Goldsmith Ceimig manufacture platinum group metal (PGM) based electrocatalysts which are used in PEM Fuel Cells and Electrolysers.

Ames Goldsmith Ceimig is part of Ames Goldsmith Corporation, a leading manufacturer of chemicals based on precious metals with sites in North America, UK and Asia. The HyPer WE range of products for PEM electrolysers include Iridium Black, Iridium Oxide, Iridium Ruthenium Oxide, Supported Iridium, Platinum Black & Platinum on Carbon support. The HyPer FC range of products for PEM Fuel Cells is a comprehensive range of Platinum on Carbon support designed for high durability.

SPONSORS

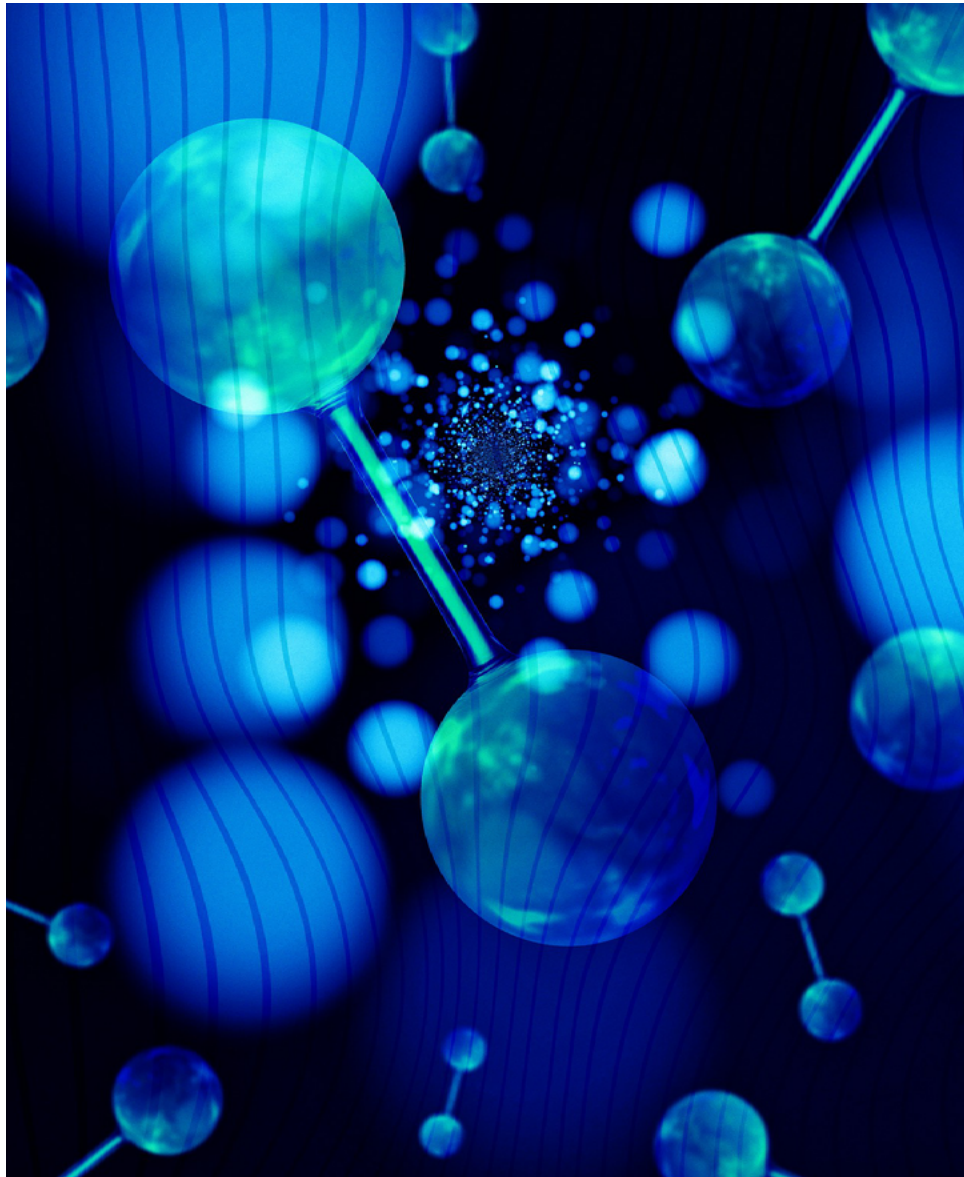


Schneider's purpose is to empower all to make the most of our energy and resources, bridging progress and sustainability for all. We call this Life Is On. Our mission is to be your digital partner for Sustainability and Efficiency.

We drive digital transformation by integrating world-leading process and energy technologies, endpoint to cloud connecting products, controls, software, and services, across the entire lifecycle, enabling integrated company management, for homes, buildings, data centers, infrastructure, and industries. We are the most local of global companies. We are advocates of open standards and partnership ecosystems that are passionate about our shared Meaningful Purpose, Inclusive and Empowered values. Leveraging the best of Power, Process and Digital, Schneider Electric's energy management and automation solutions, combined with AVEVA's integrated data platform and leading-edge industrial software, are enabling energy companies to harness the power of information, artificial intelligence, and human insight to drive efficient and sustainable performance. We are committed to supporting the energy transition, using digital tools to drive efficiency, promote circularity and shape a sustainable future.

SIEMENS Siemens AG is a leading partner in the hydrogen space with the focus on automation, measurement and digital twin tools for electrolysis suppliers.

We offer products, systems and services that enable electrolysis manufacturers to efficiently plan, produce and integrate state of the art systems within a P2X environment.



WHAT YOU WILL EXPERIENCE ON SITE

WHO IS WHO

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.

AUDIENCE Q&A

Interact with conference speakers and moderators to ensure all of your questions are answered during these sessions.

SPEED NETWORKING

Break the ice and get to know your industry peers in these fast-paced one-to-one meetings. Greet each participant in this series of brief exchanges and share your professional background.

PANEL DISCUSSION

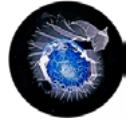
Benefit from deeper insights by attending panel discussions. Share your ideas and thoughts with peers and receive feedback from dedicated industry experts in this interactive session.

INTERACTIVE WORKING GROUPS

Get an in-depth approach to these hands-on themes. Discuss, brainstorm, elaborate and work together in this interactive session. Tutorials and workshops are also an excellent chance to interact at this perceived as the, go-to' place for knowledge, best practice and credible solutions.

NETWORKING RECEPTION

RedCabin invites our delegates to enjoy an informal evening get-together with speakers and peers. Discuss the outcome of the first summit day and expand your network in a relaxed environment.



SUMMIT DAY 1 | WEDNESDAY, 07 December 2022

08:00 REGISTRATION

WHO IS WHO

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.

08:45 Welcome note by Bernd Hamacher – Founder of BEC and
Bruno G. Pollet – President of Green Hydrogen Division IAHE and Chairman of BEC

09:00 Oort Energy – Low-Cost Electrolyser Manufacture

- Update on Oort Energy
- Launch of Our First Products to Market
- Technoeconomic Modelling

Nick van Dijk – CEO and CTO, *Oort Energy, United Kingdom*

09:30 Catalyst Coated Membrane Development to enable Advanced Electrolyser Performance

- Introduction of JM's new generation of catalyst coated membrane and their performance
- Comparison of properties to standard materials
- Roadmap to future products and alignment to electrolyser needs

Peter Ellis – Technology Director Green Hydrogen, *Johnson Matthey, United Kingdom*





SUMMIT DAY 1 | WEDNESDAY, 07 December 2022

SPEED NETWORKING

10:00 Break the ice and get to know your industry peers in these fast-paced, one-to-one meetings. Greet each attendee in a series of brief exchanges and share your professional background. Make sure you bring a whole stack of business cards with you!

10:30 NETWORKING COFFEE BREAK

11:00 Next generation technologies for electrolysis manufacturers in the hydrogen ecosystem

- Introduction of the Siemens Hydrogen Team
- Siemens track record in P2X projects
- Benefits of Siemens portfolio in the hydrogen ecosystem
- Outlook

Peter Holzapfel – Consultant Hydrogen Market, *Siemens AG, Germany*

11:30 Expert in PEM electrolysis technology for green hydrogen

- Gigafactory
- Our Technology
- Focus on R&D
- Selected projects
- Our Ambition

Carsten Krause – Managing Director, *Elogen GmbH, Germany*

12:00 The Critical Influence of Electricity 4.0 and Digitalization

- Energy consumption and Electrolyser Performance Improvement
- Scalability in both design and operations including dynamic simulation
- Predictive and remote maintenance
- Safety!
- Success Stories

Julia Reith – European Business Director Hydrogen, *Schneider Electric*

12:30 NETWORKING LUNCH BREAK

13:30 Unlocking the full potential of green hydrogen production in Europe

- A fast rollout by implementing decentral green hydrogen production
- From electrolyser stack to a scalable hydrogen production plant
- Onsite hydrogen production complementing the use of the hydrogen backbone
- World's first electrolyser producing green hydrogen at sea

Volker Häckh – Consultant, *Lhyfe, France*



SUMMIT DAY 1 | WEDNESDAY, 07 December 2022

INTERACTIVE SESSION: WORKING GROUPS

*The audience will be divided into three groups.
Each group will attend each interactive working group.*

WORKING GROUP – 1

14:00 Critical and strategic raw materials for electrolysers

- Will the availability of raw materials for electrolysers be a bottleneck in the years to come?
- Will the industry be able to reduce significantly the PGM (platinum group metals) loading in low-temperature water electrolysers in the next 5 years' time?
- How to cope with the fact that solid oxide electrolyser cell uses raw materials are mainly based in regions which are geopolitically unstable?
- Does the industry need to focus on cheap and available strategic raw materials sourced locally?
- How important is the role of end-of-life recycling in reducing supply risk of raw materials for electrolysers?

WORKING GROUP LEADERS: **Bruno G. Pollet** – President, *IAHE Green Hydrogen Division*

Vladimir Linkov – Director, South African Institute for Advanced Materials Chemistry, *University of the Western Cape*

WORKING GROUP – 2

14:00 Standardized/certified procedures for electrolyser safety, performance, lifetime and environmental impact classification to reduce investors risk

- What are the differences concerning safe operation and required countermeasures between different water electrolysis technologies (“Hindenburg-disaster”...)?
- What operating experience and data are considered acceptable for reliable lifetime performance guarantees (standards for accelerated testing and KPI determination)?
- Can a classification of the overall ecological footprint of different water electrolysis technologies provide added value for investors?

Helmut Lademann – General Manager, *R2 Intelligent Technologies GmbH, Germany*

WORKING GROUP – 3

14:00 How to unlock the potential of large-scale (GW+) offshore wind energy/electrolysis projects?

- Introducing the AquaVentus ambition and project family
- Components and players in the offshore wind energy/electrolysis area
- Opportunities and chances for electrolyser producers versus challenges and expectations

Robert Seehawer – Managing Director, *AquaVentus, Germany*



SUMMIT DAY 1 | WEDNESDAY, 07 December 2022

15:00 NETWORKING COFFEE BREAK

15:30 CONTINUING WITH WORKING GROUP 1,2 & 3

17:30 RESULTS

Each moderator of the interactive working group is presenting the outcome of their working group.

18:00 CLOSING REMARKS BY CHAIRMAN BRUNO G. POLLET

18:30 EVENING NETWORKING RECEPTION

*Enjoy an informal evening get-together at **Italofritzen Daily und Restaurant**, Hotel Neuer Fritz, Friedrichstraße 105, 10117 Berlin-Germany.*

END OF SUMMIT DAY 1





SUMMIT DAY 2 | THURSDAY, 08 December 2022

08:30 REGISTRATION & WELCOME COFFEE

09:15 Welcome note by Bernd Hamacher – Founder of BEC and
Bruno G. Pollet – President of Green Hydrogen Division IAHE
and Chairman of BEC

09:30 Reducing the cost of Green Hydrogen Generation Through Materials Innovation

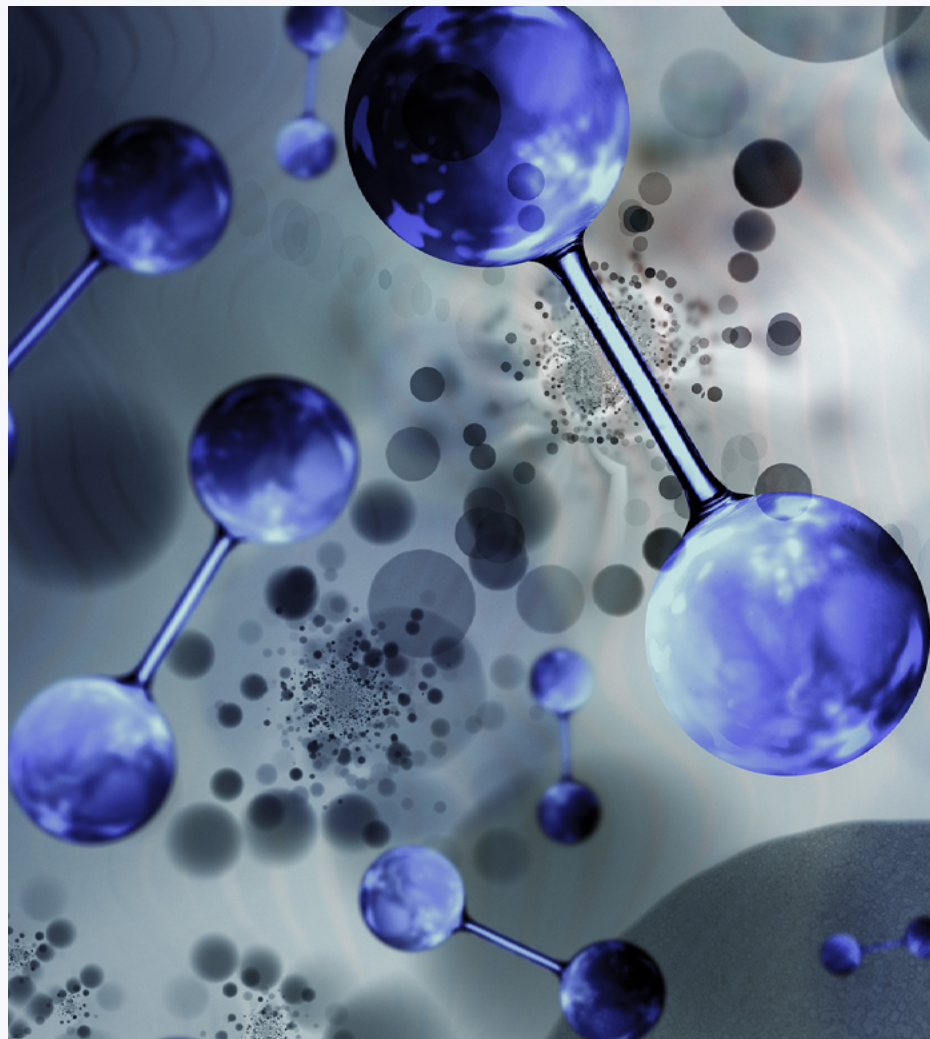
- Anode catalysts for PEM water electrolyzers
- Cathode catalysts for alkaline water electrolyzers
- Corrosion resistant coatings for PEM water electrolyzers
- Current development projects, including the recycling of titanium components

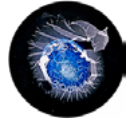
David Hodgson – Managing Director, *TFP Hydrogen Products Ltd, UK*

10:00 PEMEL technology improvement and its impact on the cost of GreenH₂

- LCOH as of 2022 market situation
- Measures to reduce OpEx
- Measures to reduce CapEx
- Optimization potential under a safe plant design

Volker Göke – Head of Product Management,
ITM Linde Electrolysis, Germany





SUMMIT DAY 2 | THURSDAY, 08 December 2022

10:30 Upscaling of PEM electrolysis solutions at Cummins

- Latest developments on PEM electrolysis technology
- Return of experience from past projects
- Cummins' manufacturing scaling-up strategy

Christoph Zahn – Sales Manager, *Cummins, Belgium*

11:00 NETWORKING COFFEE BREAK

11:30 Bloom Energy's SOEC electrolyzer technology: Proven systems and future perspectives

- Current dynamics of the German and European energy market: Is hydrogen the solution?
- Status and advantages of Bloom Energy's SOEC electrolyzer technology: efficient, reliable, proven
- SOEC: mature and commercially proven technology with higher overall performance
- Availability of technology and announced project

Stephan Reimelt – Senior Advisor Germany, *Bloom Energy, USA*

12:00 Power-to-X solutions with Sunfire's SOEC and AEL electrolyzers

- SOEC electrolyzer: technology overview and Sunfire's pioneering work for MW scales
- Co-SOEC: unique selling point of high-temperature electrolyzers

- Pressurized alkaline electrolyzer: long heritage of a mature technology and current challenges
- Power-to-X applications and demonstration activities

Oliver Posdziech – VP Large Systems Development, *Sunfire, Germany*

12:30 NETWORKING LUNCH BREAK

13:30 Challenges and opportunities in scaling up alkaline water electrolysis

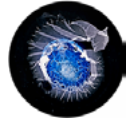
- Advantage of alkaline electrolysis for large-scale application: no dependence on critical raw materials
- Application on 100+ MW scale already in the 20th century, but current requirements mean new challenges
- The challenges: safety, flexibility and reliability, the latter two connected to operation based on renewable electricity supply
- Significant cost reduction can be achieved through scaling up, mass manufacturing and technical innovations

Thijs de Groot – Technology Developer, *HyCC, The Netherlands*

14:00 Battolyser, the next generation electrolyser

- The world's first integrated battery and electrolyser system: flexible, robust, efficient
- Battolyser's unique business model: constant arbitrage between electricity and hydrogen prices
- Outlook

Mattijs Sleen – CEO, *Battolyser Systems, The Netherlands*



SUMMIT DAY 2 | THURSDAY, 08 December 2022

14:30 AEM Electrolysers – scaling next generation hydrogen technology

- AEM electrolysis is widely considered the next generation electrolysis technology
- Enapter is the pioneer and commercial leader trailblazing AEM electrolyser
- Enapter will share their unique technology and scaling approach, making electrolysers standardized products

Philip Hainbach – Chief Governance Officer, *Enapter, Germany*

15:00 NETWORKING COFFEE BREAK

15:30 Advanced anion exchange membrane technology for cost-competitive green hydrogen production

- Evonik: a smart enabler of the sustainable green gas economy
- DURAION® Technology: next generation anion exchange membrane
- Evonik's Ir-free solution for cost-competitive green hydrogen production

Artjom Maljusch – Head of Innovation Domain AEM | CREAVIS, *Evonik Operations, Germany*

16:00 Accelerating the development of next generation electrolysers

- Facilities and protocols for validation and benchmarking
- Cooperation in national and international consortia

- Next generation PEM concept for high performance and stability at ultra-low Ir
- Scale-up of SOE cell fabrication
- System studies for offshore electrolysis

Lennart van der Burg – Program & Business Development Manager Renewable Hydrogen, *TNO, The Netherlands*

16:30 Creating Value as an Integrated Power Company

- Introduction to APR Energy
- Enabling Energy Access & Transition
- Creating Value as an Integrated Power Company
- Value-Adding Enhancements

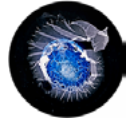
Tonya Sills – Quality Engineering, *APR Energy, USA*

17:00 CLOSING REMARKS

Bernd Hamacher – Founder of BEC and

Bruno G. Pollet – President of Green Hydrogen Division IAHE and Chairman of BEC

17:15 END OF SUMMIT



INVESTMENT PER DELEGATE	
DATE	2 DAY CONFERENCE INVESTEMENT
ORIGINAL INVESTMENT	2.595 €

SUMMIT VENUE & PARTNER HOTEL

EUROSTARS BERLIN

Friedrichstraße 99
10117 Berlin, Germany

HOTEL BOOKING

Please contact reservierung1@eurostarsberlin.com or +49 30 701 736 0 for booking.

FOR FURTHER INFORMATION, SPONSORSHIP OR DELEGATE REGISTRATION PLEASE CONTACT:

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