

On November 5, around 110 people from lighting design, luminaire manufacture, urban lighting, architecture, local authorities, energy supply, component manufacture, tourism, culture, education, professional associations, environmental authorities, research and science gathered in the light-flooded rooms of the iconic Marshall House on the Berlin exhibition grounds for the

Symposium ZUKUNFTSFÄHIG BELEUCHTEN 2024

- Symposium future proof lighting, Forum, training and inspiration for everyone who works with light -

Focus on environmental compatibility and sustainability

This platform for interdisciplinary and cross-association exchange on the key topics of environmental compatibility and sustainability in lighting had a linear structure that allowed all topics to be given equal attention.

After an introduction of all partners, it comprised seven keynote speeches and an intensive 2.5-hour discussion round based on these in the afternoon. Details can be found in the appendix.

In between, there was plenty of time for refreshments, dialog and networking, as well as guided tours of the exhibition to the stands of the supporting partners and the exhibition in the Marshall House itself, which were very well received.

The Exhibition

Für die Ausstellung - zur Außenbeleuchtung im Kinosaal und sonstigen Aspekten des Beleuchtens auf der Galerie des Marshallhauses - konnten 23 Unternehmen als Sponsoren, wie auch 13 ideelle Partner gewonnen werden.

Es wurden Positionen und innovative Ansätze zur Nachhaltigkeit und Umweltverträglichkeit gezeigt: Strategie & Beispiele, Leuchtturm-Projekte & Best Practice aus allen Bereichen der Beleuchtung und des Lebens mit Licht. Der Bogen spannte sich von Berufsverbänden, Herstellung, Anwendung, Planung, Wissenschaft, Forschung, Urlaub bis Freizeit, Spiel, Spaß & Lebensart. Dazu smarte öffentliche Straßen- und Außenbeleuchtung für Städte und Kommunen - umweltverträglicher und kostensparend. Eine vollständige Liste aller Beteiligten ist im Anhang beigefügt.

The Light-Slam

For the afternoon Light Slam - an innovative science slam on the topics of environmental friendliness and sustainability in lighting, students from various disciplines were invited to inspire the auditorium with their ideas on circularity or avoiding light smog within two and a half minutes without a projector or Power Point.

Two clear winners were chosen using an applause meter:

Emma Pustlauk (TU-Dresden, Bachelor Molecular Biology and Biotechnology) with her recycling method for fluorescent powder to recover rare earths and

Furkan Tititz (Wismar University of Applied Sciences, MA Architectural Lighting Design and Management) with his proposal to call light pollution what it is - "light waste" - and to charge the appropriate fees for it.

Summary and Prospects

The LiTG's sustainability working group (AG Nachhaltigkeit) then officially presented its position paper "Sustainable lighting".

Professor Römhild from the University of Wismar and Paula Longato from the Sustainability Working Group gave a summary.

Finally, we were even able to experience the premiere of the teaser of the didactic film "Mindful Light" by Norbert Wasserfurth, which was designed to impart lighting knowledge.

Inspiration & Exchange

The day was characterized by diverse, intensive, inspiring and very inspiring exchanges. The approach of bringing together people and positions across associations and topics that do not usually meet was once again very successful.

Our most important conclusion is:

- The professional associations of the manufacturing and user industries, including the LiTG, can take on this educational mission and thus play a key role in social education and would therefore also bear responsibility for the impact of their own field of activity.
- The protection of nocturnal landscapes is a priority for the protection of biodiversity.
- The lighting transition - a more prudent use of artificial lighting - is essential.
- Further arguments in the appendix

The Bottom Line

Our aim was to raise awareness and promote cross-organizational cooperation

Our aim is to make a further contribution to raising awareness of the impact of lighting on the environment (biodiversity) and society. In addition to a cross-sectoral discourse within the specialist community, this should also be accessible to the public in order to

make both professional and private lighting more sustainable. This was the second time we were successful within the professional community.

Nevertheless, due to the short planning lead time, the staffing ratio, various parallel events, relatively high admission prices and the resulting low visitor numbers and the fact that the belektro trade fair is closed to the general public, this year we have not yet succeeded in reaching everyone - from installers to planners and decision-makers in local authorities, including private users.

We are therefore aiming for a broad-based cooperation model with other associations and partners in order to continue the event.

- Designed and organized by a well-staffed organizational team that allows for a sensible division of tasks and can be sure of the full support and backing of all the management teams involved.
- That becomes active, for example as part of a public educational mission as an interface with society,
- to ensure sustainability, possibly in combination with a publicly funded transnational research project, which could pursue application-oriented research questions on the relationship between lighting in culture and society.
- On the basis of a joint financing model, supplemented by public funding that makes us independent of sponsorship
- and thus allows us to conduct an even more open and visionary dialog with all interest groups - from manufacturers, start-ups, research, application and teaching - that is freely accessible to all types of visitors - the basis for visionary, sustainable lighting..

The event was once again excellently hosted by Simon Hauser,

Moderator, Auftragsredner, Coach

<http://www.hauser-kommunikation.de>

In addition to the above, seven further presentations were offered at belektro on November 6 under the motto PARTNER LECTURES "FUTURE PROOF LIGHTING ON BELEKTRO FROM A RESEARCH AND INDUSTRY VIEWPOINT", seven further lectures were offered, which were also very well received. Details in the appendix

We would like to thank everyone who contributed to the success of the event.

The hosts

This time, the event took place under the responsibility of and with the support of LiTG e.V. in cooperation with belektro.

It was conceived and largely organized by Caroline Vilbrandt from umWeltgerecht Beleuchten - Planning - Consulting – Communicating Lighting, representing the cooperation partner Gather Around Light.

About the LiTG

The LiTG, German Society for Lighting Technique and Lighting Design e.V., based in Berlin, is a registered independent non-profit association with over 100 years of history and around 2000 members. The LiTG sees itself as a dynamic network and knowledge platform for all those interested in light and deals with "light and lighting" in the areas of technology, design, planning and application in theory, practice and research.

It organizes events and conferences, produces specialist publications and maintains the "European Lighting Expert" training and examination program.

It also participates in the development of national and international standards and cooperates with relevant specialist organizations such as DIN, CEN, CIE, ISO and the national lighting societies.

Further Information: www.litg.de

About Gather Around Light:

an informal network of light and darkness enthusiasts from lighting planning, design, science, art, luminaire manufacture & sales.

Organizer of the bi-monthly Berlin lighting get-together and interface of LiTG, IALD, WIL, OpTec BB & more.

Initiators of events on the topic with a view beyond the horizon to the most diverse perspectives and communication to the public.

Civic-professional voluntary commitment with passion & impact.

Further information at www.gather-around-light-net

Sustainable event:

We recommend that our visitors travel by bus and train instead of by car or plane, as well as booking sustainable accommodation.

We ask our partners and sponsors to refrain from giveaways and offer regional and seasonal catering.

Information

www.zukunftsfähig-beleuchten.de

www.zukunftsfähig-beleuchten.de

Appendix - the details

The impulse lectures

The topics forming the basis for the panel discussion in the afternoon were:

- Aspects of social sustainability in the working culture of companies as a competitive business advantage.
- The influence on ecological relationships through materiality / production / recycling with the aim to consume and produce in a more recyclable way and with as little damage as possible and its significance for the product design of luminaires.
- The use of light and how it can be designed, especially outdoors, in such a way that it benefits people, does less harm to the surrounding nature and produces less light waste.

The speakers brought decades of scientific expertise as well as the will to change of committed and highly motivated millennials to their presentations.

Their knowledge from many years of life and professional experience was just as important as their scientific and academic knowledge.

Expertise instead of promotion

A key aspect for the impulses - and subsequently in detail - was "best practice", i.e. the opportunity to really learn from each other using concrete examples. The speakers gave us an insight into specific approaches and processes. This was a novelty, because it implied a detailed look behind the scenes and revealed everyday company life, company philosophies and experience reports.

Distinguishing this from company and product promotion is not an easy task, neither for the speakers nor for the audience, and so a certain advertising bias - which could hardly be avoided - was criticized.

However, under the motto "We are all experts" and "Every contribution to change counts", it gave us the opportunity to really go into detail in the discussion and thus experience the complexity of the interrelationships based on the different perspectives and approaches.



Sustainable employment relationships - competent, fair, autonomous, at eye level

Solveig Buseler - Schnick Schnack Systems, Global Director Sales & Marketing, Member of the Board

Solveig reported on everyday life in the company she co-manages, where mutual respect, cooperation at eye level and team success through personal responsibility really take top priority. Flat hierarchies and the best in-house training opportunities for employees regardless of age, social, cultural and educational background empower and create the basis for high production quality, which motivates employees to make the best possible contribution to the company structure.

Ms. Busler thus provided a best practice example of SDGs that are lived and not just quoted in the employment relationship and how they can become a competitive advantage.



A brief scientific look at the environmental impact of luminaires

Dr. Sebastian Knoche - Manager Research TRILUX GmbH & Co. KG

Based on the results of the SUMATRA - Sustainable Materials in Future Luminaire Design collaborative research project, conducted with the Fraunhofer IZB for Life Cycle Assessment and others, Dr. Sebastian Knoche has examined two of over 20 environmental impact categories with regard to luminaires: the Global Warming Potential (GWP) and the Abiotic Depletion Potential (ADP), to explain: materials that are no longer available once they have been used up.

A method that has its strength in its attention to detail, specific key figures and theoretical models.

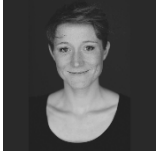
The insight: the time of use leaves a much larger footprint in terms of the life cycle assessment than production and transportation. This rather abstract approach analyses conventional manufacturing processes and identifies optimization potential.



Aluminum in comparison - what influence does the raw material have on the overall result of the ecological footprint of luminaires

Dipl. Ing. Joachim Becker - Founder and Managing Director of beolum GmbH, Lecturer & Consulting Sustainability

Joachim Becker focuses on processes that have been practiced to date, from the extraction of raw materials to the product and its disposal, based on the question of what sustainability means for society and the extent to which we can also contribute to "not consuming more than can be regrown / regenerated / made available again in the future" in the manufacture of luminaires. As the steadily increasing demand for aluminum in various alloys and its recyclability cannot yet be met either quantitatively or qualitatively and the extraction of this primary raw material alone is particularly environmentally destructive and polluting, his perspective and alternative was to upgrade renewable raw materials so that they are suitable for luminaire production.



Circular Economy – from Green Deal into practice > CSRD, ESPR & Digital Product Passport: How is a company preparing to shape the transformation from a linear to a circular economy? What are the requirements and interfaces with the construction industry?

**Dipl. Des. Ines Göbel - Sustainability Manager Zumtobel Group;
before Uni Kassel, Braungart EPEA / C2C, Lecturer Circular Economy**

At the home in the cradle to cradle* concept, Ines Göbel explained to the audience to what extent and with which instruments the EU's Green Deal political strategy can support the (lighting) industry in its transformation towards a circular economy, and how the detailed recording of the product specifications of all components can lead to a Digital Product Passport (DPP). In other words, how we can finally provide the consumer with the “material and parts lists” that allow these materials to be recovered after use.

*Cradle to Cradle pursues the approach of a largely separate biosphere - plant resources and ecosystems to ensure supply and the technosphere - the world of abiotic and synthetic materials, products and processes. The aim is to obtain raw materials that can be separated to a high quality and thus recycled. This would also be facilitated by the fact that products are no longer “bought” and “consumed”, but are used as part of a beneficial use right and then automatically end up back in the material cycle. This is a technological challenge for highly complex products and a social challenge because it requires a fundamental change in attitude.



**Light in transition -
Requirements for recyclable and sustainable lighting**

**Christian Brehm -
Senior Director Lightcycle Retourlogistik & Service GmbH, München**

Christian Brehm took us into the practice of recycling and showed us which electronic waste we can expect in the coming decades, how this is likely to change and what the practice of recovering recyclable materials can look like now and in the future. He posed the question of product responsibility in the face of changing trade routes towards global online marketplaces. In doing so, he broadened the view beyond the classic three-stage distribution channel common in professional lighting to the mass of semi-professionally implemented projects and private individual consumers and their large footprint, which has received little attention to date.

His recommendation: consistent DFR (Design for Recycling) and resource-conserving use of materials.



Lighting of railroad installations in accordance with DIN EN 12464-2, taking into account the requirements according to DB guideline 81305 with regard to environmental compatibility

Hon.-Prof. Dipl.-Ing. Axel Stockmar, Hannover University of Applied Sciences and Arts & LCI Light Consult International

Axel Stockmar introduced us to the world of expert committees in which regulations are created. Using the railroad standard as an example, he showed how findings from environmental research are being incorporated and reviewed in our own model railway stations, such as the amber and 3000K spectra currently used in Pritzerbe.

This is a major step forward for non-human residents, as it reduces illuminance. Utilance - light only on the area to be illuminated, i.e. up to the edge of the platform - is taken into account, as is glare reduction, which benefits both train drivers and rail passengers, especially in the dark night landscapes of rural areas.

He reported: "5000 stations will have to be retrofitted accordingly in the coming decades. That will take a while.



Synergy effects for Advertising & commercial lighting, general and outdoor lighting thanks to lighting control via the IOT

Johannes Mailänder, Gründer & CMO LichtWART GmbH; vorm. Prokurist & Verkaufsleiter Bertelmann GmbH

In his presentation, Johannes Mailänder took us on a journey through the decades-old history of a signage company. An understanding of the environment, practical experience, knowledge of processes and the labor market, a high standard of service and consulting responsibility towards customers with regard to cost-saving potential and the Internet of Things have led to a start-up for the founders. For us, however, the approaches and processes themselves - the exchange of experience - were of interest:

Consider an illuminated advertising installation - a significant source of light pollution and light waste. This is equipped with presence and usage time-dependent sensors and a specially developed module in the fuse box, which is connected to a control platform via the IOT. This combination not only makes it possible to control the lighting decentrally, but also to monitor and analyze maintenance requirements.

The result: lighting volumes can be reduced in line with demand and the environment, costs can be cut and "the stars can be made visible again".

This is also a possible solution for other types of lighting to harmonize the overall lighting volume.

What was particularly inspiring about his presentation was the precise knowledge of the usage phases and maintenance circumstances based on a strong customer relationship, combined with the presentation of a strategy for maximizing potential savings. In outdoor and general lighting, this has rarely been considered to such an extent.

The second highlight - the panel discussion

Two and a half hours of intensive discussion. No one left the room and questions from the audience were taken into account - the results and findings of the day speak for themselves:

Sustainability in luminaire production

- Standardization, material harmonization and consistent “design for recycling” are prerequisites for the sensible recovery of raw materials.
- It must be ensured that this knowledge is taught in vocational schools, training and further education institutions and universities.
- Renewable raw materials and organic waste can be an alternative in product development and luminaire manufacture.
- They should be upgraded for the desired functions in a material-healthy manner.
- It is questionable whether the provision of renewable raw materials can be scaled up to the necessary level.
- Their use could be realized more quickly than the transformation to a circular economy takes and thus meet the urgency to act.
- The circular economy in the lighting industry is a challenge, but feasible - no surprise, after all, we were always supposed to work this way.
- Precise knowledge of the environmental impact of raw materials and manufacturing processes is helpful and just as important as digital product passports.
- Both instruments are very time-consuming and labor-intensive and therefore represent an economic challenge for companies - not only in terms of their creation, but also in particular in the implementation of cycles.
- The aim for decommissioned luminaires should actually be refurbishment and reuse.
- Careful and damage-free dismantling of luminaires must be ensured; otherwise they cannot be refurbished.
- Second hand is manufacturing with all the consequences for the associated pricing.
- Recycling is cost- and energy-intensive.
- On-site recycling processes have not yet been guaranteed in sufficient detail for cost reasons.
- Composite materials and the variety of raw materials make it difficult to separate and recover high-quality materials cleanly.
- Too much ends up in thermal recycling or is apparently profitably dumped abroad under problematic social and environmental conditions.
- We need an attractiveness booster for the recycling industry.
- International standards and rules help us to take responsibility for our own products.
- Forming partnerships could help. With political support and financial incentives, lights and other e-waste could be the valuable raw material mines that they are. If

no costs were spared in the development of systems for their recycling and all technical possibilities were exhausted, they could become attractive places to work and valuable sources of raw materials for everything that we do not have in the form of natural deposits - rare earths, copper, crude oil in other forms.

- Biotechnology as a low-energy recovery method: magnetosomes can extract rare earths.
- We need a change in values and attitudes: from waste to mine. Raw material recovery is value creation on site, without natural deposits

Environmental friendly lighting applications

- Light pollution becomes light waste. The fees collected for this can fund research into resource-saving recycling processes.
- The protection of nocturnal landscapes is a priority for the protection of biodiversity.
- Interdisciplinary partnerships and cross-association cooperation can help to reduce light pollution.
- The good example of the railroad standard should serve as a model for street and streetcar lighting.
- The standards are not a law, but a recommendation.
- Professional, independent planning allows lighting that is appropriate to the user and the time of presence for people and non-human residents.
- Too few lighting projects are planned professionally.
- We should also rethink the basis of our regulations with regard to sufficiency - the amount of light actually required.
- Cost savings are a convincing argument for making the stars visible again without losing their range and attractiveness.
- Harmonizing the different types of lighting, which still add up unplanned today, is a desirable goal and should become a recognized standard.
- Getting into action: as lighting professionals, we also have the task of raising awareness of the (impact) effects in society.
- The professional associations of the manufacturing and user industries, including the LiTG, can take on this educational mission and thus play a key role in social education and would therefore also bear responsibility for the impact of their own field of activity.

General

- Getting into action: as lighting professionals, we have the task of raising awareness of the (impact) effects in society.
- Society should be empowered to better recognize its own consumer responsibility and develop the willingness to bear it. Educational programs for adults and children can help here.
- Raising awareness is a prerequisite for a change in values and attitudes.
- Educational programs for adults and children can help here.

- The professional associations of the manufacturing and user industries, including the LiTG, can take on this educational mission and thus play a key role in educating society and would therefore also bear responsibility for the effects of their own field of activity.
- Change takes time and must therefore be tackled all the more urgently.
- Many stakeholders need to be convinced and brought on board.
- Interdisciplinary partnerships and cross-association cooperation can be helpful in reducing light pollution as well as in the transformation towards a circular economy.
- The lighting transformation a more careful use of artificial lighting is essential.

PROGRAM & SCHEDULE NOVEMBER 5TH:

- 09:00 a.m. Admission & cup of coffee
- 09:30 a.m. Speeches & intro - Presentation of the Experts and the Speakers
- 10:00 a.m. 4x10+5 minutes Impulses, Positions, Questions
- 11:20 a.m. Coffee break
- 11:50 a.m. 3x10+5 minutes Impulses, Positions, Questions
- 12:50 a.m. Lunch, guided exhibition & trade fair tours; networking
- 2:00 p.m. Panel discussion, possibly with coffee break
- 4:30 p.m. Time for refreshments, guided exhibition & trade fair tours; networking
- 5:30 p.m. Light Slam
- 6:00 p.m. Summary & outlook
- 6:30 p.m. Time to wind down, guided tours of the exhibition; networking
- 7:30 p.m. End

MARKET OF POSSIBILITIES - Partners and sponsors

Positions & approaches to sustainability: strategies & examples, lighthouse projects & best practice from all areas of life with lighting - production, application, planning, research, vacation, leisure, play, fun & lifestyle

EXHIBITION ON PRUDENT OUTDOOR LIGHTING & IN THE MOVIE THEATER

Adolf Schuch GmbH:

Outdoor lights for star parks

Annette Krop Benesch: Journey through the bright night - a game about light pollution

Bergmeister GmbH: Regional outdoor lighting manufacturer with circular potential

BFN - Federal Agency for Nature Conservation: Publications, guidelines, recommendations

Catherine Perez Vega: The environmental impact of artificial lighting in urban settings: gaps, challenges

and sustainable lighting design

Focus Lighting GmbH: Seawater resistance through oxidation; take-back concept for luminaires in the circuit

Förderverein Nationalpark Boddenschiff e.V. & Büro für Landschaftsplanung und

Umweltberatung: Best practice - Ahrenshoop - more insect-friendly outdoor lighting

HEI Technology International GmbH: Solar luminaires for public street lighting
DACH

L&L Luce&Light:

Shielded outdoor lights & light accents

Laternix GmbH & Co. KG: Continued use through retrofitting instead of replacing existing luminaires

Leibniz Institute of Freshwater Ecology and Inland Fisheries: AUBE-Project

LichtWART GmbH: Save costs & protect biodiversity with smart lighting control for retail, industry, commerce and marketing

ROLAN Manifesto in german language

Selux GmbH: AETO Solar System Pole & Circulare Light profiles

Siteco GmbH: Smart outdoor lighting & control

Sky Heia GmbH: Sleeping under the stars

Ulrike Brandi Licht Lichtplanung und Leuchtenentwicklung GmbH:

presentation of the „EU Interreg Northsea Project Darker Sky“

VISIT DARK SKIES® GmbH: Audio experience for stargazers

WE-EF LEUCHTEN GmbH: sensitive Lighting

GALLERY EXHIBITIONS

Anolis Lighting Division Robe

Deutschland GmbH: Lighting solutions for architectural lighting from sustainable production with minimized scattered light

Beolum GmbH - Alternative raw materials to aluminum

Brandt & Partners: Optimizing management and processes - industry-specific HR consulting and data-based efficiency diagnostics

Ellux Vertriebs GmbH: A strong partner for sophisticated and sustainable lighting solutions - examples from various manufacturers

Fagerhults Belysning AB: Introducing a pioneer in sustainability and recyclability

IGuzzini illuminazione Deutschland

GmbH: Ways to Design For Recycling and examples of the use of regrowing raw materials in lighting.

IALD German Chapter

Ledvance GmbH - Everloop, Natureloop & VIVARES Lichtmanagementsystem

Lightcycle Retourlogistik und Service GmbH:

How can lighting be recycled?

LightLife Gesellschaft für

audiovisuelle Erlebnisse mbH: Griven

- Architectural lighting for intact nightscapes

LiTG / LTG e.V. Nachhaltigkeits-AG: Position paper on sustainable lighting

Lumen Radio: Light - even without cables

Regiolux GmbH: Pioneering innovations with efficient and environmentally friendly luminaires

Schnick-Schnack-Systems GmbH: High-quality individual, ready-to-use lighting solutions and controls for special tasks from sustainable production

Signify GmbH: 3D printed lights - sustainable, individual and suitable for every style

Street Astronomy: bringing Stars to Citizens

TM65-66: Sustainable luminaire production in the UK

Trilux GmbH: Research project SUMATRA, Wellumic - The symbiosis of daylight and artificial light

XAL GmbH: Future-proof through sustainable product concepts

Supplementary on 6.11.24

PARTNER PRESENTATIONS "FUTURE-PROOF LIGHTING AT BELEKTRO FROM THE PERSPECTIVE OF RESEARCH AND INDUSTRY"

WHEN: from 14:30

WHERE : Hall 4.2, Forum Energy & Tech

Topics Approaches to sustainable and recyclable luminaire production, nature & environmental protection, legislation and law

- | | | | |
|--------------|---|---|---|
| 14:30 |  | <p>Environmentally friendly lighting or what needs to be considered when planning lighting - Suggestions from the perspective of the Federal Agency for Nature Conservation</p> <p>Marita Böttcher, BfN, FG II 4.2, Leipzig</p> <p>Since 1993 Initiating and participating in various research projects, collaborations, legislative projects and publications on the reconnection of spaces and light pollution</p> |  |
| 14:50 |  | <p>Rethinking the circular economy: smart, environmentally friendly lighting solutions for existing systems</p> <p>Dipl. Wirtsch. Ing. Michael Haertl,</p> <p>Founder and Managing Director Laternix GmbH & Co. KG, formerly CTO Siteco - Development of sustainable LED solutions for the energy-efficient modernization of indoor and outdoor lighting</p> |  |
| 15:05 |  | <p>Rethinking light and energy</p> <p>Dipl. Ing. Roman Liebe, Dipl. Ing. Photoingenieur, M.A. Lighting Design - Senior Creative Engineer Selux GmbH, before Development of lighting systems and lighting solutions; development engineer in the semiconductor industry</p> |  |
| 15:30 |  | <p>Street lighting yesterday / today / tomorrow - Ideas / Concepts / Solutions</p> <p>M. Sc. Samuel Fiedelak - Sales representative City Siteco GmbH</p> <p>Before. Research activity TU Berlin, AG Outdoor Lighting, i.a. LED catwalk, member of outdoor lighting expert forum LITG</p> |  |
| 15:45 |  | <p>Small series from the printer - a sustainable production alternative</p> <p>Dipl. Ing. Sabrina Bräuß</p> <p>Signify GmbH, Sales & Business Development Manager 3D Printing</p> |  |
| 16:00 |  | <p>More sustainability in outdoor lighting with solar lights outdoor lighting in the DACH region</p> <p>Dieter Hornbachner</p> <p>Founder and Managing Director of HEI Technology International GmbH - Highly efficient LED outdoor lighting, solar street lighting.</p> |  |
| 16:15 |  | <p>Sustainable lighting - through legal regulations to innovation</p> <p>Dr. Sibylle Schroer, Scientific Coordinator for Sustainability and Biodiversity Research at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB) in Berlin.</p> |  |
| 16:35 |  | <p>Designing light responsibly</p> <p>Elisa Balboni L&L Luce&Light</p> <p>Key Account Light planners, architects</p> |  |
| 16:50 | | End | |

MEDIA PARTNER

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TU Ilmenau