ECOSLIGHT-Workshop

About ECOSLIGHT:

ECOSLIGHT is a project about Environmentally Conscious Smart Lighting funded by the European Framework of Erasmus+ / Sector Skills Alliances Programme with 12 partners spread in 5 European countries. The dynamic changes in lighting technology, triggered by digitally controllable LED-technology, demands a growing need of lighting sector skills that bring together lighting design, smart technologies, as well as skills that take into account ecological and human-centric issues on lighting systems. The project ECOSLIGHT aims to enhance education in the lighting sector. Project outputs will benefit the knowledge base for different stakeholders, including lighting-related professionals (e.g. architectures, engineers, urban planners, etc.), as well as business marketing, associations, municipalities and policy makers. A better interdisciplinary training in the lighting sector will benefit the general public, by enabling smart buildings and cities, optimizing energy saving potentials and reducing the negative effects of illumination such as obtrusive light, glare and adverse impact on flora and fauna.

The workshop:

The workshop will introduce ECOSLIGHT and present three talks as impulses for a discussion about future outdoor lighting in urban areas. The discussion will be open to the public, address all stakeholders of the lighting sector and summarize the needs for the lighting sector and for future interdisciplinary research.

1. From human centric lighting towards ecological inclusiveness

Over the past decades, the application of lighting technologies has endorsed the unnatural brightness and colour appearance of the night. As a consequence, a significant increase in light pollution has been reported that adversely affects biological rhythms in flora and fauna. Today, night-time illumination prioritizes the human-centric experience of 24/7 illuminated cities and landscapes over the ecological relevance of naturally dark nightscapes. The value of the night has been neglected, not only as a crucial part of the environment, but also, as an important component of ecosystems and biological processes necessary for all living organisms. Therefore, in this section of the presentation, the values and technological solutions of the lighting practice are presented to address the need for a change from human-centric lighting approaches to ecologically inclusive lighting applications that raise awareness on the impact of improperly applied lighting technologies and that to preserve the night-time environment and their inhabiting flora and fauna.

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2. Light pollution measurements and the interdisciplinary pitfall

This presentation will give an overview of types of light pollution (direct and skyglow) and the measurement of light pollution, including the night sky brightness. The target audience are mainly lighting professionals. However, the talk will cover devices and procedures that are commonly used in light pollution research, often having their background in astronomy or ecology. It will highlight common problems of interdisciplinary research and the need for future developments of common measurement standards.

3. From knowledge to regulations

This part of the workshop will present a) the background of European lighting standards and gaps for regulations of light pollution and b) give some insights from lighting projects in Greece.

The moderator:

Sibylle Schroer

is scientific coordinator of the working group “Light Pollution and Ecophysiology” at the Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB) in Berlin, Germany, since 2010. Among other projects, she has coordinated the COST-Action “Loss of the Night Network” (ES1204, 2012-2016) and contributed to develop guidelines for environmental friendly outdoor lighting. Sibylle is board member of the International Dark Sky Association (IDA) and member of the CIE TC4-61 "Artificial Lighting and its Impact on the Natural Environment". Her research focus is the protection of insects and biodiversity. She has studied biological alternatives for chemical pesticides in projects at the German Federal Research Centre for Cultivated Plants (JKI) and at the University of Florida (Fort Lauderdale, US). Sibylle holds a doctorate in agricultural science from the Christian Albrecht University in Kiel, and a Diploma of Horticulture Science from the Humboldt University in Berlin, both Germany.

The presenters:

Catherine Pérez Vega

is a Panamanian interdisciplinary designer and researcher. She holds a bachelor degree in Product Design from L’École Supérieure de Design from France and a master degree in Architectural Lighting Design at Hochschule Wismar, University of Applied Sciences, Technology, Business, and Design, Germany. She is currently a Doctoral candidate in Biology at Freie Universität Berlin, Germany with her research taking place at the Light Pollution and Ecophysiology research group of Leibniz Institute for Freshwater Ecology and Inland Fisheries. Her work involves the interphase of ecology and architectural lighting to mitigate environmental solutions for urban lighting design applications.

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Andreas Jechow

is an interdiscilinary physicist with a broad expertise in photonics, the science of light, and imaging. He received a PhD in photonics and laser physics from the University of Potsdam, Germany. He did a PostDoc in Australia where he imaged the "shadow of an atom" and subsequently worked in quantum microscopy.
Since 2015, Andreas applies his knowledge on light and imaging in environmental sciences where he works on light pollution and optical remote sensing of inland waters at the Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB). His main research interest is measuring and assessing the impact of ecological light pollution. He developed and built a skyglow light source for a large-scale ecological experiment on lake ecosystems at the IGB LakeLab (ILES project). He currently coordinates a project on minimizing impact of lighting on key species (bats and insects) in nature conservation areas in Southern Germany (NaturLicht project) and develops automated spectral sensors for lake monitoring (CONNECT project). Andreas is a member of the CIE TC4-61 "Artificial Lighting and its Impact on the Natural Environment".

Lambros T. Doulos

holds a PhD from the National Technical University of Athens (ECE School, 2010). He holds a degree in Physics (University of Athens, 1999) and a Master of Science degree in Environmental Physics (University of Athens, 2002). He is an Associate Professor at the School of Applied Arts and Sustainable Development of the Hellenic Open University with scientific subject "Lighting Technology with applications in energy optimization and the coupling of Daylight and Electric Lighting in the Human Centric Environment". As a Researcher-Physicist he works in research programs, measurements, studies and lighting projects. He has collaborations with lighting companies and has carried out numerous lighting projects and studies. He has also participated as a member of committees of Technical Instructions and legislation (KENAK 2017, KENAK 2021, TOTEE 20701-1 / 2017, 20701-4 / 2017, 20701-7 / 2021 "Artificial and Daylighting of Buildings"), as a member of the CIE International Lighting Committee (participation in 6 technical committees) and the ISO committee (participation in 1 technical committee) in drafting instructions and regulations. He is a member of ASHRAE (President of the Hellenic Branch 2020-21) and official RELUX Certified Trainer and representative.

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