Editorial: Special issue for early career researchers in lighting

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Completing your PhD studies and acquiring a doctoral degree is a notoriously challenging and often lonely process. Learning the skills to become an academic, from defining a research question to conducting research and correctly identifying and communicating its outcomes, takes a lot of time and persistence. Scientific communication is a particularly important skill: being able to describe research methods so that they are testable and reproducible and being able to convey the context, motivation, conclusions, and implications of research are fundamental for establishing the value of any research endeavour for science and society. In addition, publishing research outcomes in scientific articles is one of the core mechanisms to receive peer-review feedback, which – despite its limitations – is a true pillar of the scientific process and critical for the integrity and quality of scientific research.

The peer-review process in scientific articles would not exist without reviewers. Reviewers work in the shadow, unpaid and (most often) unacknowledged, to guarantee that published articles are of the highest quality, rigour, and clarity. In today's abundance of information and publications, their role as expert judges and critical filters is ever-essential. The key task of an editor, and not a trivial one, is to find the perfect reviewers for each article. For LR&T, this means two (or more) reviewers. They need to be experts in their fields, unbiased towards authors, dedicate time to properly read the article and provide careful feedback, respect the given deadlines, and ideally be able to follow up subsequent review rounds. The service that such reviewers provide is of immense value for science, for journals, for readers and for authors. However, from the perspective of the author, the process of publishing a scientific article and navigating through the peer-review system used by most journals can often be intimidating. At the same time, feedback from reviewers can sometimes be confusing or appear to be more critical than constructive, especially for researchers at the beginning of their career.

In this Special Issue, we aimed to showcase the work of Early Career Researchers (ECRs) in lighting and to support them by clarifying the publication process and by making an explicit effort to ensure constructive feedback to authors. First authors were required to be PhD candidates at the time of submission. In addition, reviewers were requested to provide rigorous feedback and at the same time considerate and detailed suggestions on how the article could be improved. We received particularly thorough and thoughtful feedback from reviewers that greatly improved the initial articles; for this, we would like to express our sincere gratitude to all reviewers involved. Authors were very receptive to this feedback, and we highly appreciated their patience throughout the several review rounds. The effort placed in this process from both authors and reviewers resulted in an inspiring collection of articles on a broad variety of topics.

On the topic of urban lighting, Flores-Villa *et al.*[1] combined acoustic and lighting appraisals during a guided walk in an historical urban context during daytime and after dark and examined potential cross-domain effects. Hennig *et al.*[2] studied changes in social interactions in public squares under daylight and after dark under electric lighting. Rather than conducting a study in controlled experimental conditions, as is often the case, Hennig *et al.*[2] used undisturbed field observations. Hamoodh *et al.*[3] showed through a photograph-based experiment that the face, rather

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than the hands, of an approaching pedestrian is the most important visual cue in interpersonal safety evaluations during night-time. Lastly, Jedon *et al.*[4] proposed a new theoretical framework for evaluating street lighting that includes factors previously unaccounted for, such as alertness, arousal and anxiety. The authors advocate examining these factors and their interactions through both the image forming (IF) and non-image forming (NIF) pathways to advance scientific knowledge on pedestrian safety, performance, and perception.

Focusing on the NIF effects of lighting, Gkaintatzi-Masouti *et al.*[5] reviewed existing tools to simulate non-image forming effects of light and pointed out the lack of models to describe personal light history and gaze direction, as well as the lack of data to characterise sky spectral information. Relating to the importance of gaze direction, Englezou *et al.*[6] examined the variation in CIE S 026 melanopic metrics across different gaze directions, seasons, and hours through field measurements in a daylit south-facing room in Cyprus.

The gaze direction and position of an occupant are also important for visual discomfort from daylight: Viula *et al.*[7] pointed out that the Daylight Glare Probability metric showed lower predictive performance for occupants at the inner parts of a classroom and proposed modifications to improve discomfort glare predictions in classrooms. Quek *et al.*[8] compared the validity and consistency of existing questionnaires to assess discomfort glare in daylit indoor spaces. Designs with binary, ordinal, and categorical ratings were found to reach similar glare ratings, although thresholds for low level of discomfort did not always coincide.

With the growing use of virtual reality (VR) in lighting research, Leontopoulos *et al.*[9] investigated the potential negative effects of blue light exposure through VR head-mounted displays on eye safety by examining the blue light hazard of current state-of-the-art and prototype VR displays compared to existing standards. Lastly, Yu *et al.*[10] examined the light field, consisting of both emissive light sources and indirect surface (inter-)reflections, and its colourimetric properties in uni-chromatic spaces illuminated by white light using physical and simulated experiments.

Despite the wide range of topics touched upon by the articles included in this SI, there seems to be a common thread emerging from the work of ECRs: to explain the complex phenomena and interactions in our perception and experience of light, we need to embrace novel methods and concepts as well as to revise existing ones to accommodate new perspectives. This SI serves to remind us that change is also an integral part of scientific innovation; we can all contribute to it by nurturing good research practices among ECRs and by embracing the new insights that they can bring. The overall aim in lighting research, after all, is that scientific knowledge improves, and that every new generation of lighting scientists is brighter than the previous one.

E Brembilla and K Chamilothori
Guest Editors

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