Proceedings

of the

14th International Symposium on Automotive Lighting

Technical University of Darmstadt

Laboratory of Adaptive Lighting Systems and Visual Processing

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14th International Symposium on Automotive Lighting

Foreword

It is a pleasure to present you the proceedings of the 14th International Symposium on Automotive Lighting, which takes place in Darmstadt on April, 4-6, 2022. Caused by the global Covid19-pandemic, this conference had to be shifted to 2022. This conference is the document of a series of successful conferences since the first PAL-conference in 1995 and shows the latest innovative potentials of the automotive lighting technologies, together with the sensor technology and AI (Artificial Intelligence).

These proceedings result from the work of a lot of experts in the automotive and optical industry, administrative bodies, research institutes and universities. It summarizes the findings of more than 200 authors and co-authors and gives a scope of their expectations for the future. In 2021, the ISAL Steering Board could identify the following focus topics:

- Headlamp Rating Systems and their practical relevance for a global use
- High Resolution Headlamps and Digital Light, not only for high beam but also for low-beam range in the cities in the context of an international urbanization
- Road Projections (Front field and near-field)
- Communication between automated vehicles and other road users
- Light source technology generally with the innovations in Laser and LED-OLED
- Simulations as promising test environments

While in the last couple of years, focus was placed on high-resolution headlamps and this topic still remains relevant today, the most pressing topic for this year's ISAL is the evaluation of headlamp light distributions on the road. The main influencing parameters are the visibility (object detection probability), the homogeneous illumination and the effective lateral width of the light distribution. A key factor for an optimal illumination on the road is the correct adjustment of the headlamps in the system of the vehicle. Another strong topic for this year's symposium is the ongoing investigation on road projection and its benefit for the driver. What kind of symbols should be projected onto the road in front of the driver and what benefit do they lead to?

Similar to ISAL 2019, ISAL 2021 will host a podium discussion on the latest research and international opinions regarding the evaluation methods for headlamp lighting distributions and on how these methods can find the way into international regulations.

We wish you a very informative and successful ISAL 2021 in Darmstadt. We hope that this year's event and these proceedings will give you inspiration and motivation for your work during the next months and years.

Yours sincerely,

Prof. Dr.-Ing. habil. Tran Quoc Khanh

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