

Lisbon, Portugal,
31 May - 4 June, 2019

IV International Conference on
Applications of Optics and Photonics

Welcome to AOP 2019

The world of Optics and Photonics meet in Lisbon, Portugal, from the 31st May to the 4th of June 2019, at the IV International Conference on Applications in Optics and Photonics, AOP 2019!

The present scientific activity is the 4th edition of successful meetings, which started upon the extraordinary success of the first International Conference on Applications in Optics and Photonics, AOP2011, organized by the Portuguese Society for Optics and Photonics, SPOF, at the University of Minho (www.optica.pt/aop2011), followed by a second edition in Aveiro (www.aop2014.org) and a third in Faro (www.aop2017.org). It will be the major optics conference in Portugal next year and one of the most important at world level, aiming at discuss the recent progress and to establish a view on the future of all fields of optics and photonics.

Lisbon is the capital and the largest city of Portugal. Boasting over 20 centuries of history, its traditional neighbourhoods with steep, narrow streets, with their characteristic cobblestone pavements, unique in Europe, and the tile panels on buildings, are all part of Lisbon's incredibly acquired heritage over time. In the historical centre of the city you can still enjoy the richness of the music declared intangible cultural heritage of humanity by UNESCO, the "fado".

Surrounded by the Tagus River, the riverside area features large gardens and imposing monuments, such as the Jerónimos Monastery, the Monument to the Discoveries or the Belém Tower. The main factory of the traditional and delicious "pastel de Belém" is located in this neighbourhood.

In the most contemporary part of the city there is Parque das Nações, a lively, dynamic and multifunctional area, characterised by the modern architecture of the buildings and by the diverse infrastructures and green spaces for leisure and recreation.

Further afield in the suburbs, you can enjoy the long sandy shores, either to relax or practice sports, as well as the stunning protected landscapes or the picturesque rural landscapes. There are also to discover various monuments classified as world heritage sites by UNESCO.

ORGANIZATION



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Efficient and stable holographic gratings stored in an environmentally friendly photopolymer

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Holographic gratings stored in one of the greenest photopolymers, called Biophotopol and patented by Holography and Optical Processing group at the University of Alicante, have been analyzed to achieve stable over time and efficient holograms. A curing process usually produces a diffraction efficiency (DE) decrement. However, when a curing process is not performed, the holographic gratings are not stable and DE will decrease over time due to the diffusion of molecular components inside the photopolymer.

In this work, a DE increment has been demonstrated after a curing stage (performed with an incoherent and low-cost LED lamp). A detailed curing protocol to stabilize the holograms while maintaining high DE, has been carried out in unslanted transmission gratings of 1205 l/mm. The holographic transmission reflection setup allows the possibility to evaluate the transmitted and diffracted intensity beam relation, in real time, by using a He-Ne laser (633 nm), while the gratings were recording with an Argon laser (488 nm).

It has been demonstrated more than a 30% DE increment after a curing process when a maximum DE in the recording stage had not been still achieved. However, in the singular case that a maximum DE in the recording stage has been already obtained, a curing stage process could produce overmodulation effects, and therefore, a DE decrement. In conclusion, a maximum DE is obtained in curing and stable hologram gratings (recording them with proper radiant exposures) over an environmentally compatible photopolymer.