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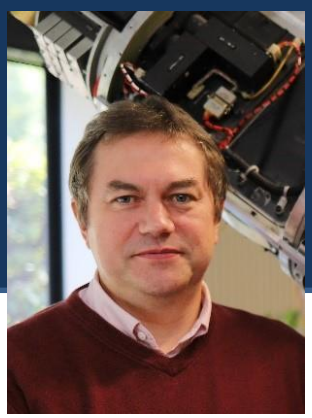

Holography from thermal infrared to terahertz in view of applications in metrology and nondestructive testing

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Phase is a physical quantity of optical waves which is important for imaging, sensing and measurement purposes. Holography allows capturing phase of an object or a scene from which many information can be retrieved, unlike traditional imaging. Holography is used in many applications, from artistic display to microscopic imaging in the biomedical field. Also through interferometric phase comparison, one can observe any change in the object. This is an important field of research in engineering, where movements or deformation of object can be followed during an evolving stress, for instance. In this talk we will show the possibilities offered by long wavelengths (from thermal infrared to Terahertz waves), in holography and some engineering applications, such as metrology of large space structures and nondestructive testing of aerospace materials.

SHORT BIO:

Dr. Marc Georges was graduated in physics at the Université catholique de Louvain (Belgium) in 1989. He received a joint master diploma in Instrumentation and Measurement from the same university and Imperial College of London in 1990. Then he joined the Centre Spatial de Liege (CSL, a Centre of Excellence in Optics of the European Space Agency) at the Liege University (Belgium), where he worked on several projects related to development of holographic metrology methods and devices for aerospace structures. He received his PhD in 1998 from the same university. Since 2006 he is responsible of the laser and nondestructive testing laboratory of the CSL. He leads researches and developments in optical metrology by various coherent and uncoherent imaging methods for assessing the behavior of space structures under space simulated environments. Also he develops innovative nondestructive testing methods of aerospace composites (visible and thermal infrared holography, thermography, laser ultrasonics, Terahertz wave imaging and holography). He is SPIE Senior member, OSA and EOS member. He is author and co–author of scientific papers, invited journal papers and conferences, keynote speeches and book chapters. He is Chair of the Unconventional Optical Imaging SPIE conference (Strasbourg 2018, 2020), program chair of the Digital Holography and 3D Imaging OSA conference (Bordeaux 2019), Symposium chair of the SPIE Optical Metrology (Munich 2019) and in the Steering Committee of World of Photonics Congress (Munich 2019). He also serves as Topical Editor of Applied Optics journal and is guest editor of various SPIE and OSA journals devoted to holography and coherent imaging.

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