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## **Malaga statistical distribution: The new universal analytical propagation model for atmospheric optical communications**

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Recently, a new and generalized statistical model, called Málaga or simply M distribution, has been proposed to characterize the irradiance fluctuations of an unbounded optical wavefront (plane and spherical waves) propagating through a turbulent medium under all irradiance fluctuation conditions in homogeneous, isotropic turbulence. Málaga distribution was demonstrated to have the advantage of unifying most of the proposed statistical models derived until now in the scientific literature in a closed-form and mathematically-tractable expression. Furthermore, it unifies most of the proposed statistical models for the irradiance fluctuations derived in the bibliography providing, in addition, an excellent agreement with published plane wave and spherical wave simulation data over a wide range of turbulence conditions (weak to strong). In this communication, reviews of its different features are discussed including a new interpretation and a physical interpretation of its parameters is provided. It is worth noting that the proposed expressions of this Málaga distribution together with their physical interpretation provide a very valuable tool for analyzing the effects of turbulence induced scintillation in atmospheric optical communication links under any turbulence conditions.

### **Biography**

Antonio Jurado-Navas received his MS degree (2002) and a PhD degree (2009) in Telecommunication Engineering, both from the University of Málaga (Spain). He was the recipient of a Spanish Ministry of Education and Science scholarship (2004–2008). From 2004 to 2011, he was a Research Assistant at the Communications Engineering Department in the University of Málaga. In 2011, he became an Assistant Professor in the same department. He has worked for different companies: Vodafone (2002-2004), Airzone (2008-2009), or Ericsson (2012-2015). Since 2015, he is a Marie Curie Fellow Post-doctoral Fellow at the Technical University of Denmark and member of the Atmospheric Optical Communications Group in the University of Malaga. His research interests include topics such as atmospheric optical communications, adaptive optics and statistics.

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