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Jiaxing · China

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Lecture:

Challenges and Approaches of ultra-compact high-resolution optical payloads for micro-satellites

Prof. Dr. Zhong Xing earned his Ph.D. in Optical Engineering from the Chinese Academy of Sciences (CAS) in 2009. Following his graduation, he worked at CAS from 2009 to 2014, during which time he was instrumental in co-founding Chang Guang Satellite Technology Co., Ltd. (CGSTL). His research has centered on the design and application of ultra-lightweight, high-performance optical satellites for Earth observation. With a strong academic background and a focus on practical innovation, Dr. Zhong has authored over 150 scientific papers. He currently serves as the Vice President and Chief Engineer of CGSTL, while also holding a part-time professorship at Dalian University of Technology.

The presentation focuses in the field of satellite design, strict constraints on size and weight make high-performance optical payloads essential for the development of compact micro- and nano-satellites. However, miniaturizing these optical systems while maintaining superior imaging capabilities presents significant engineering challenges. In this presentation, Dr. Zhong will focus on the strategies used to overcome these challenges, using high-resolution optical payloads as a case study. He will highlight CGSTL's advancements in satellite development, including the application of full-link optimization techniques and the integration of novel freeform surface optical systems. These innovations have significantly improved the performance and efficiency of miniaturized satellite platforms. The talk will also offer insights into emerging trends and the future direction of optical payload design for next-generation Earth observation satellites.