
Perspective on Future VCSEL Transmission over Anti-resonant Hollow-core Fiber

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With the burst of AI large model, conventional data centers are now transforming into intelligent computing centers with more GPUs and network devices responsible for interconnections. Due to the rapidly increasing scale of GPUs, the transmission distance and capacity grow simultaneously. VCSEL, as the dominant optical module option for DCN, is facing great pressure from other approaches like Silicon photonics (SiFo) due to its reach limitation. The fundamental problem comes from the extremely impure data channel of multimode fiber (MMF). Antiresonant hollow-core fiber (AR-HCF) have witnessed steady progress in attenuation reduction ($<0.1\text{dB/km}$), as well as additional advantages like ultra-low nonlinearity, ultra-wide transmission window, low chromatic dispersion, and minimum latency, showing great potential on providing extremely pure data channel. In this talk, the concept of VCSEL transmission over AR-HCF will be introduced, featuring the benefits of extending VCSEL transmission reach and lowering overall latency.

Short Bio:



Dawei Ge is now a Research Scientist with China Mobile Research Institute. He obtained Ph.D. in optical communications from Peking University in 2020. He is now in charge of high-speed WDM network technological strategy and advanced optical communication research in China Mobile. His current research interests include antiresonant hollow-core fiber and its transmission system design, B800G optical fiber communications and OTN/WDM networks. He has authored or co-authored more than 80 journal and conference articles, including ECOC/OFC top-scored papers, ECOC PDP, ACP PDP, IEEE WCM, JLT, OL etc. He involves in the Young Elite Scientist Sponsorship Program by China Association for Science and Technology.