

**NANOTECHNOLOGY FOUNDATION FOR EMERGING SCIENCE AND TECHNOLOGY AT NSF**

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**Abstract:** The information age we are living in today is built on vast fiber-optic networks, where electronic devices, data centers and supercomputers are communicating constantly at Terabits per second through electricity and light. This communication infrastructure is growing exponentially and demands a new generation of photonic devices to meet the stringent techno-economic challenge of data networking. HyperLight is commercializing an integrated photonics platform based on thin-film lithium niobate, combining high performance and excellent scalability. This is enabled by nanofabrication, and in particular high quality etching, of one of the best optical materials – lithium niobate, that has been an outstanding challenge for the industry over a few decades. Surprisingly we find that ultrahigh quality photonic devices can be fabricated at scale using only standard lithographic processes. We show that such capability has significant impact over not just optical communication, but also a broad area of photonics including quantum photonics and sensing applications.

**Bio note:** Dr. Mian Zhang is the co-founder and CEO of HyperLight Corporations. HyperLight is a venture capital backed startup commercializing thin-film lithium niobate photonic technology. Prior to joining HyperLight, he was a postdoctoral fellow at Harvard University. Dr. Zhang has co-authored over 120 technical articles with a total of over 4000 citations. Dr. Zhang obtained his PhD from Cornell University in 2015. Prior to that, he received his bachelor's degree from University of Bristol in UK.