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## **Tunable photonic devices based on micro and nanostructured thin film lithium niobate**

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We report micro-structured lithium niobate (LN) as a versatile platform for realizing electro-optic photonic devices, especially for its applications in electric field sensing, tunable plasmonic devices, etc. The idea is to combine the high electro-optic (EO) coefficient of thin film LN with micro and nanostructure to enhance the light-matter interaction, which therefore reduce the driving voltage, miniaturize the device size, or enhance the sensitivity of the photonic devices. The first proposed on-chip device is electric field sensing based on the EO effect of LN, utilizing the LN thin film photonic crystals embedded in the facet of the standard single mode fiber (SMF) Or on the optical waveguide, all dielectric electric sensing or antenna electrodes-based electric sensing can be achieved. Another proposed device is to use the plasmonic structure to realize a tunable device with low driving voltage.



**Short Bio:**

**Huihui Lu** received his PhD degree in Photonics from Centre Nationale de la Recherche Scientifique (CNRS), France. He is a professor and director of department of optoelectronic engineering, Jinan University, China.