

# **Nanoscale Engineering Optical Nonlinearities and Nanolasers (Presentation Video)**

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## **ABSTRACT**

Dense photonic integration requires miniaturization of materials, devices and subsystems, including passive components (e.g., engineered composite metamaterials, filters, etc.) and active components (e.g., lasers, modulators, detectors). This paper discusses passive and active devices that recently have been demonstrated in our laboratory, including monolithically integrated short pulse compressor utilized with silicon on insulator material platform and design, fabrication and testing of nanolasers constructed using metal-dielectric-semiconductor resonators confined in all three dimensions.

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