## Functional Nano organic and inorganic materials and their applications in 3D holographic display and compact fiber lasers

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**Abstract** Nano-organic and inorganic materials are being investigated for a variety of photonics applications including LEDs, solar cells, lasers, displays, imaging systems, to name a few. Guest-host polymers with engineered nanostructures are being investigated as index change materials for holographic 3D displays. Nanocarbon-doped structures are being researched as nonlinear saturable absorbers in fiber lasers. Our recent advances in these areas will be summarized