

Abstract Submitted
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The Physics of Up-Conversion Nanophosphors for Cancer Treatment SHUANG-FANG LIM, WILLIAM RYU, Princeton University, ROBERT RIEHN, North Carolina State University, ROBERT AUSTIN, Princeton University — Upconversion phosphors are rare-earth containing crystalline materials which can convert infrared light to visible light (hence the name up-conversion), via excitation of real levels of rare earths. They overcome limitations of current organic fluorophors and quantum dots and have unique properties that enable advanced imaging, drug delivery applications and light-based chemotherapy. The process by which near - IR photons (980 nm) are summed in a rare-earth matrix to emit visible light is a fascinating problem in atomic physics combined with solid-state physics. We will present experimental results which probe this non-linear phenomena.

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