Nonlinear optical responses of 2D materials

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Abstract

2D materials are currently the best candidates for nonlinear optical/ photonic applications. Our group is currently working on the optimization of 2D topological insulators in order to enhance their saturable absorption efficiencies. Our recent results concerning the Bi2Se3 and Sb2Te3 materials will be presented. More specifically, the thin film deposition, annealing, as well as the ultrafast nonlinear optical studies using the Z-scan technique will be presented. These studies have been performed using 400fs laser pulses at the visible (515 nm) and IR (1030 nm) parts of the spectrum. The impact of the thickness and the crystallization state of the samples on the optical nonlinearities will be also shown.

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