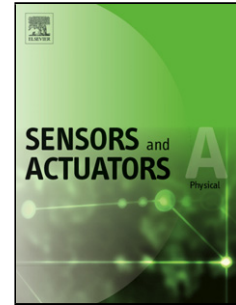


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Nonlinear-optical switching in Gold nanoparticles driven by magneto-optical effects exhibited by Carbon nanotubes

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Highlights

- A nanostructured double-stage switching system was proposed.
- Magneto-optical effects and nonlinear optics were analyzed.
- Strong magneto-optical properties in carbon nanotubes were evaluated.
- Au nanoparticles in an optical Kerr gate were proposed.

Abstract

Herein is addresses the application of attractive and large magnetization of carbon nanotubes for modulating optical signals. A cascade system based on multiwall carbon nanotubes in thin film form and Au nanoparticles embedded in a TiO₂ thin solid film were combined to achieve a nonlinear magneto-optical switching action. An all-optical switching device rising from an optical Kerr effect in the second stage is proposed to transmit a magneto-optical signal from the first stage. Multiwall carbon nanotubes with large magnetic sensitivity were incorporated in the arm of a Michelson interferometer to

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