

Accepted Manuscript

Magnetic field induced changes in linear and nonlinear optical properties of Ti incorporated Cr₂O₃ nanostructured thin film

Priyanka Baraskar, Romita Chouhan, Arpana Agrawal, R.J. Choudhary, Pranay K. Sen, Pratima Sen

PII: S0375-9601(18)30055-0
DOI: <https://doi.org/10.1016/j.physleta.2018.01.011>
Reference: PLA 24919

To appear in: *Physics Letters A*

Received date: 14 November 2017
Revised date: 19 December 2017
Accepted date: 9 January 2018

Please cite this article in press as: P. Baraskar et al., Magnetic field induced changes in linear and nonlinear optical properties of Ti incorporated Cr₂O₃ nanostructured thin film, *Phys. Lett. A* (2018), <https://doi.org/10.1016/j.physleta.2018.01.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

- Cr₂O₃ multifunctional transparent oxide semiconductor is capable of coupling electric, magnetic and optical fields.
- It can be used for making multifunctional devices.
- Our pulsed laser deposited Ti- incorporated thin film displays nanocrystalline surface structure.
- Optical switches and optical memory elements require basic knowledge of dispersive optical nonlinearity.
- We report magnetically controlled dispersive optical nonlinearity in the Ti- incorporated Cr₂O₃ thin film.
- Application of the magnetic field modifies the electronic spectra causing the change in the sign of the optical nonlinearity.
- Consequently, we report both positive and negative optical nonlinearity in pulsed laser deposited Cr₂O₃ thin film in the presence and absence of applied magnetostatic field.

Download English Version:

<https://daneshyari.com/en/article/8203768>

Download Persian Version:

<https://daneshyari.com/article/8203768>

[Daneshyari.com](https://daneshyari.com)