

A DATA STORAGE MEDIA AND A METHOD FOR FORMING THEREOF**Abstract**

5 A data storage media for providing multi-dimensional multi-level recording and storage and a method for forming thereof is described according to embodiments of the invention. In the embodiments of the invention, the formed data storage media contains a unique substrate-based sub-structure for providing within a single data storage media. This structure increases the data storage capacity at a any single
10 location on the data storage media which detracts from conventional single recording layer structures. Additionally, the method and material used for forming the respective recording layers described in the embodiments of the invention resulted in physical property-variable data recording at each locations on each of the multiple recording layers. The resulting data storage media according to the embodiments of
15 the invention enables multi-dimensional multi-level recording and storage. The information is recorded and reproduced by utilizing at least two physical properties selected from reflectance, polarization, time, frequency, wavelength and electronic spin of one of reflected and transmitted light. The locations also allows the use of a single laser beam without need for refocusing between recording layers as described
20 and demonstrated by conventional data storage medias and methods. Therefore, recording density and data transfer rate of the data storage media formed by the method are significantly increased.

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Figure 8



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