

27/09/02
2002061828

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 October 2001 (04.10.2001)

PCT

(10) International Publication Number
WO 01/73779 A3

(51) International Patent Classification⁷: **G11B 7/24, 7/00**

(21) International Application Number: **PCT/IL01/00286**

(22) International Filing Date: **28 March 2001 (28.03.2001)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
135309 28 March 2000 (28.03.2000) IL

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(81) Designated States (national): **AE, AG, AL, AM, AT, AU,**
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

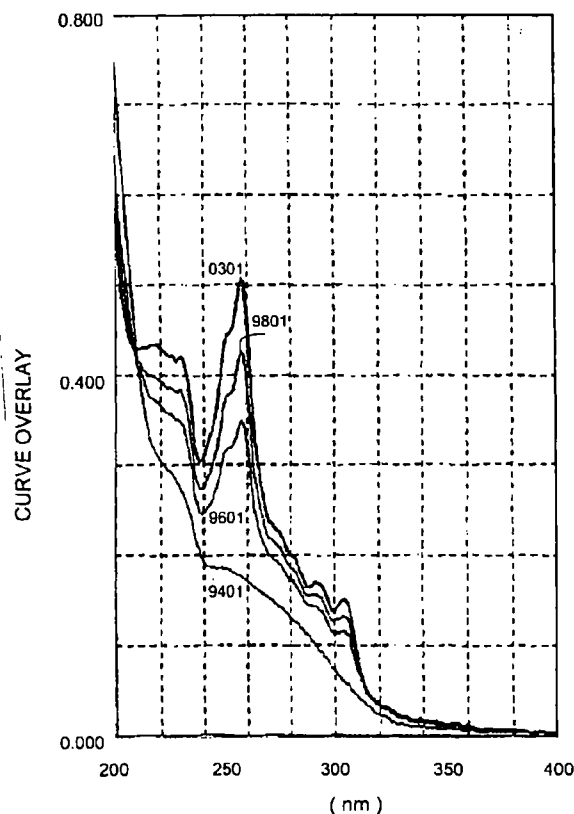
(84) Designated States (regional): **ARIPO patent (GH, GM,**
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: **THREE-DIMENSIONAL OPTICAL MEMORY**



(57) Abstract: The present invention is directed to a three-dimensional memory apparatus for storing information in a volume comprising of an active medium. The active medium is capable of changing from a first to a second isomeric form as a response to radiation of a light beam having an energy substantially equal to a first threshold energy. The concentration ratio between a first and a second isomeric form in any given volume portion represents a data unit. The active medium in the memory apparatus comprises of diarylalkene derivatives, triene derivatives, polyene derivatives or a mixture thereof. The invention is further directed to means for reading the data units from the isomeric states of the active medium in different portions of said active medium where the two isomeric forms have a substantially different absorption coefficient for absorbing energy of a second threshold energy. Reading may also be carried out by measuring the scattering pattern of the two isomeric forms.



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