

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number
WO 2004/042104 A2

- (51) International Patent Classification⁷: **C23C**
- (21) International Application Number:
PCT/US2003/015545
- (22) International Filing Date: 14 May 2003 (14.05.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/384,890 31 May 2002 (31.05.2002) US
10/436,724 12 May 2003 (12.05.2003) US
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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, EC, 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, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

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

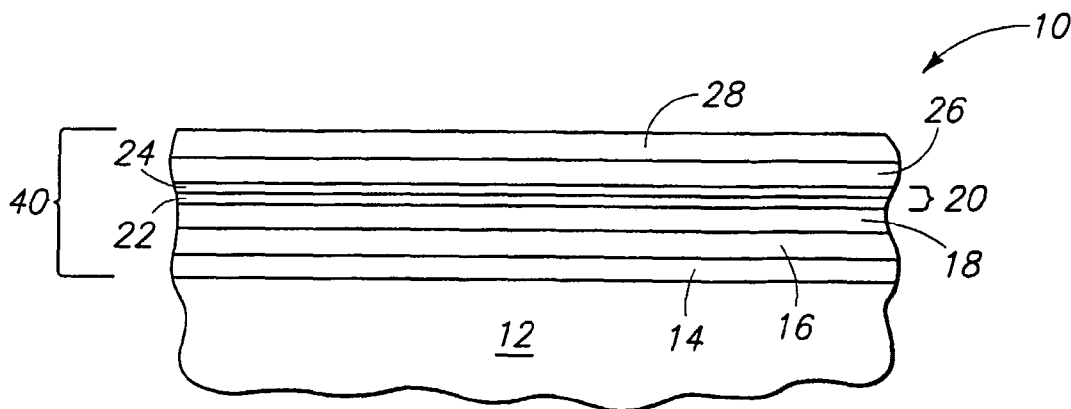
Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: THIN FILMS AND METHODS FOR FORMING THIN FILMS UTILIZING ECAE-TARGETS



(57) **Abstract:** The invention includes methods of forming a barrier layer. Material is ablated from an ECAE target to form a layer having a thickness variance of less than or equal to 1 % of 1-sigma across a substrate surface. The invention includes a method of forming a tunnel junction. A thin film is formed between first and second magnetic layers. The thin film, the first magnetic layer, and/or the second magnetic layer are formed by ablating material from an ECAE target to provide improved layer thickness uniformity relative to corresponding layers formed utilizing non-ECAE targets. The invention includes a physical vapor deposition target and a thin film formed using the target. The target contains an alloy of aluminum and at least one alloying element selected from Ga, Zr and In. The resulting film has a thickness variance across the thin film of less than 1.5 % of 1-sigma.