

(19) World Intellectual Property Organization
International Bureau



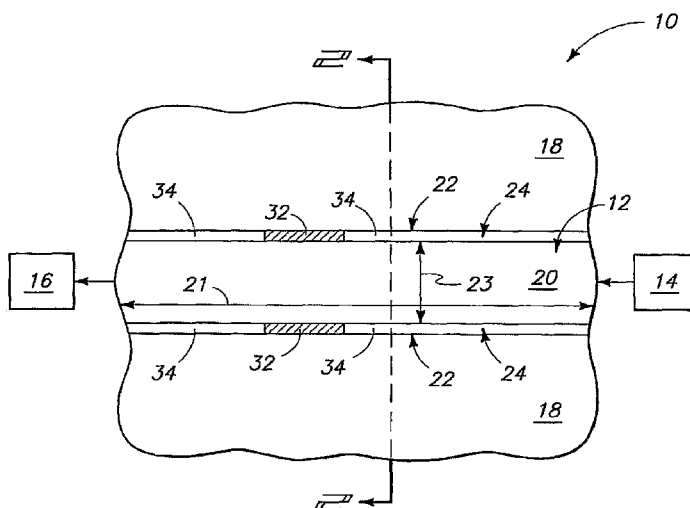
(43) International Publication Date
2 August 2007 (02.08.2007)

PCT

(10) International Publication Number
WO 2007/087046 A2

- (51) International Patent Classification: Not classified
- (21) International Application Number:
PCT/US2006/048261
- (22) International Filing Date:
15 December 2006 (15.12.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
11/332,991 17 January 2006 (17.01.2006) US
- (71) Applicant (for all designated States except US): MICRON TECHNOLOGY, INC. [US/US]; 8000 S. Federal Way, Boise, ID 83716 (US).
- (72) Inventor: MOULI, Chandra; 727 S. Granite Way, Boise, ID 83712 (US).
- (74) Agents: GRIGEL, George, G. et al.; WELLS ST. JOHN P.S., 601 W. FIRST AVENUE, Suite 1300, Spokane, WA 99201 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (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.

(54) Title: SEMICONDUCTOR CONSTRUCTIONS, METHODS OF FORMING SEMICONDUCTOR CONSTRUCTIONS, LIGHT-CONDUCTING CONDUITS, AND OPTICAL SIGNAL PROPAGATION ASSEMBLIES



(57) Abstract: The invention includes optical signal conduits having rare earth elements incorporated therein. The optical signal conduits can, for example, contain rare earth elements incorporated within a dielectric material matrix. For instance, erbium or cerium can be within silicon nanocrystals dispersed throughout dielectric material of optical signal conduits. The dielectric material can define a path for the optical signal, and can be wrapped in a sheath which aids in keeping the optical signal along the path. The sheath can include any suitable barrier material, and can, for example, contain one or more metallic materials. The invention also includes methods of forming optical signal conduits, with some of such methods being methods in which the optical signal conduits are formed to be part of semiconductor constructions.