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(21) International Application Number: PCT/US97/23128 (22) International Filing Date: 11 December 1997 (11.12.97) (30) Priority Data: 08/766,219 12 December 1996 (12.12.96) US (71) Applicants: ENERGY CONVERSION DEVICES, INC. [US/US]; 1675 W. Maple Road, Troy, MI 48084 (US). UNITED SOLAR SYSTEMS CORP. [US/US]; 1100 West Maple Road, Troy, MI 48084 (US). (72) Inventors: OVSHINSKY, Stanford, R.; 2700 Squirrel Road, Bloomfield Hills, MI 48013 (US). GUHA, Subhendu; 5366 Clearview, Troy, MI 48084 (US). YANG, Chi-Chung; 4310 Birch Run Drive, Troy, MI 48084 (US). DENG, Xunming; 4750 Sutton Place, Toledo, OH 43623 (US). JONES, Scott; 12989 Boardwalk, Romeo, MI 48065 (US). (74) Agents: SCHUMAKER, David, W. et al.; Energy Conversion Devices, Inc., 1675 W. Maple Road, Troy, MI 48084 (US).	(81) Designated States: AU, BR, CA, CN, FI, JP, KR, MX, NO, RU, SG, UA, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>	
(54) Title: SEMICONDUCTOR HAVING LARGE VOLUME FRACTION OF INTERMEDIATE RANGE ORDER MATERIAL (57) Abstract A high quality non-single-crystal silicon alloy material including regions of intermediate range order (IRO) silicon alloy material up to but not including the volume percentage required to form a percolation path within the material. The remainder of the material being either amorphous or a mixture of amorphous and microcrystalline materials. The materials were prepared by CVD using differing amounts of hydrogen dilution to produce materials containing differing amounts of IRO material. Preferably the material includes at least 8 volume percent of IRO material.		