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(21) International Application Number: ☒ PCT/US97/01537 (22) International Filing Date: ☒ 31 January 1997 (31.01.97) (30) Priority Data: ☒ 08/595,305 ☒ 1 February 1996 (01.02.96) US (71) Applicant: ROOM TEMPERATURE SUPERCONDUCTORS INC. [US/US]; 301 A North Main Street, Sebastopol, CA 95472 (US). <i>see letter of 11/9/01</i> ☒ (71)(72) Applicants and Inventors: GRIGOROV, Leonid N. [RU/RU]; Apartment 40, 26 Baku Komissar 7-4, Moscow, 11571 (RU). SHAMBROOK, Kevin, P. [US/US]; 8580 A Villa Road, Forestville, CA 95436 (US). <i>see Pf 8</i> . (74) Agent: McFARLANE, Thomas, J.; 426 Lowell Avenue, Palo Alto, CA 94301 (US).		(81) Designated States: AU, BR, CA, CN, FI, HU, IL, JP, KP, KR, MX, NO, NZ, PL, SG, UA, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), 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> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>
(54) Title: MATERIALS HAVING HIGH ELECTRICAL CONDUCTIVITY AT ROOM TEMPERATURES AND METHODS FOR MAKING SAME ☒ (57) Abstract A method is disclosed for producing a polymer material whose room temperature conductivity exceeds 10^6 S/cm. In a preferred embodiment the material is produced in the form of a film having thickness less than 100 μm. Conduction takes place through threads passing through the film which is otherwise a dielectric. The film is produced by first depositing a macromolecular polymer substance on a substrate. During preparation, the substance must be in a viscose liquid state. Stable free electrons (polarons) are then created by ionizing the substance. This is assisted by exposure to UV radiation and the presence of strong polar groups in the polymer. Various techniques, such as applying a strong electric field, are then used to join the polarons together into conducting threads within the medium. To stabilize the conductivity, the medium is then solidified by cooling it below its glassing point or inducing cross-linking between the macromolecules.		