



(11) EP 1 737 053 A8

CORRECTED EUROPEAN PATENT APPLICATION

published in accordance with Art. 158(3) EPC Note: Bibliography reflects the latest situation

(15) Correction information:

(12)

Corrected version no 1 (W1 A1) Bibliography INID code(s) 72

(48) Corrigendum issued on: **03.10.2007 Bulletin 2007/40**

(43) Date of publication: 27.12.2006 Bulletin 2006/52

(21) Application number: 05727085.2

(22) Date of filing: 22.03.2005

(84) Designated Contracting States: **DE GB**

(30) Priority: 25.03.2004 JP 2004088290

(71) Applicant: National Institute of Advanced Industrial Science and Technology Tokyo 100-8921 (JP)

(72) Inventors:

MIHARA, Toshiyuki
 c/o Kansai Center of National Institute of
 Advanced Industrial Science and Technology
 Ikeda-shi, Osaka 5638577 (JP)

 FUNAHASHI, Ryoji c/o Kansai Center of National Institute of Advanced Industrial Science and Technology Ikeda-shi, Osaka 5638577 (JP) (51) Int Cl.:

H01L 35/22 (2006.01) C04B 35/495 (2006.01) C04B 35/50 (2006.01) H01L 35/32 (2006.01) H01L 35/34 (2006.01) H02N 11/00 (2006.01)

(86) International application number: **PCT/JP2005/005133**

(87) International publication number: WO 2005/093864 (06.10.2005 Gazette 2005/40)

- AKEDO, Jun
 c/o National Institute of
 Advanced Industrial Science and Technology
 Tsukuba-shi, Ibaraki 3058564 (JP)
- BABA, Sou
 c/o National Institute of
 Advanced Industrial Science and Technology
 Tsukuba-shi, Ibaraki 3058564 (JP)
- MIKAMI, Masashi c/o Kansai Center of National Institute of Advanced Industrial Science and Technology Ikeda-shi, Osaka 5638577 (JP)
- (74) Representative: Müller-Boré & Partner Patentanwälte
 Grafinger Strasse 2
 81671 München (DE)

(54) THERMOELECTRIC CONVERSION ELEMENT AND THERMOELECTRIC CONVERSION MODULE

(57) The present invention provides a thermoelectric element in which a thin film of p-type thermoelectric material and a thin film of n-type thermoelectric material, which are formed on an electrically insulating substrate, are electrically connected, in which the p-type thermoelectric material and the n-type thermoelectric material are selected from specific complex oxides with a positive Seebeck coefficient and specific complex oxides with a negative Seebeck coefficient, respectively. The present invention also provides a thermoelectric module using

the thermoelectric element(s) and a thermoelectric conversion method. In the thermoelectric element of the present invention, since a p-type thermoelectric material and an n-type thermoelectric material are formed into a thin film on an electrically insulating substrate, the thermoelectric element of the invention can be formed on substrates having various shapes, thereby providing thermoelectric elements having various shapes.

Fig. 8

