Solid State Science and Technology, Vol. 14, No 1 (2006) 22-27
ISSN 0128-7389
22

SAMPLE PREPARATION AND DIELECTRIC SPECTRUM EQUIVALENT CIRCUITS MODELING FOR $Bi_2Mn_2O_7$

Abdul Halim Shaari, Wan Mohd. Daud Wan Yusoff, Mansor Hashim,
Zainal Abidin Talib, Lim Kean Pah, Tay Boon Ping
Physics Department, Faculty Science, 43400 UPM Serdang,
Selangor Darul Ehsan, Malaysia.

ABSTRACT

A $Bi_2Mn_2O_7$ ceramic sample was prepared by solid state reaction method. Its dielectric property was then characterized by impedance analysis within frequencies range from 10^2 Hz to 10^6 Hz and temperatures range from room temperature to 450°C. All spectrums were then normalized into a single master curve. The dielectric response mechanism observed in the sample master curve spectrum were modeled by combinations of diffusive, quasi-dc, bound charge (dipole-like) elements with a non-dispersive capacitor. The experimental data are in close agreement with the value obtained from equivalent circuit.

http://journal.masshp.net/wp-content/uploads/Journal/2006/Abdul%20Halim%20Shaari%2022-27.pdf

REFERENCES

[1]. N.A. Hill (2000); *J. Phys. Chem*. B **104**, 6694
[2]. Alessio Filippetti and N.A. Hill (2001); *J. Magn. Magn. Mater.* **236**,176
[3]. N.A. Hill and Alessio Filippetti (2002); *J. Magn. Magn. Mater.* **242-245**, 976
[4]. T. Atou, H. Chiba, K. Ohoyama, Y. Yamaguchi and Y. Syono (1999); *J. Solid State Chem.* **145**, 639
[5]. C.W. Nam, L. Liu, N. Cai, J. Zhai, Y.H. Lin, L. J. Dong, C. X. Xiong (2002); *Appl. Phys. Lett*. **81**, 3831
[6]. L. Fuentes, M. García, J. Matutes-Aquino and D. Ríos-Jara (2003); *J. Alloys and Compounds* **xxx**, xxxx
[7]. V. Bohnar, P. Lunkenheimer, A. Loidl, E.E. Kaul and C. Geibel (2002); *Solid State Comm.* **122**, 595
[8]. A. Moreira dos Santos, S. Parashar, A.R. Raju, Y.S. Zhao, A.K. Cheetham, C.N.R. Rao, (2002); *Solid State Comm.* **122**, 49
[9]. M.F. Kabir, W. M. Daud, K. Khalid and H.A.A. Sidek (2000); *Wood and Fiber Science* **32(4)**, 450
[10]. L. A. Dissado and R. M. Hill (1984); *J. Chem. Soc., Faraday Trans. 2* **80**, 291
[11]. T. Ramdeen, L. A. Dissado, R. M. Hill (1984); *J. Chem. Soc., Faraday Trans. 1* **80**, 325
[12]. R. M. Hill and Colin Pickup (1985); *J. Mater. Sci.* **20**, 4431
[13]. L. A. Dissado, R. C. Rowe, A. Haidar, and R. M. Hill (1987); *J. Colloid Interface Sci.* **117(2)**, 310
[14]. A. K. Jonscher (1983); *Dielectric Relaxation in Solids*; Chelsea Dielectrics Press Ltd, London; Chap3, pp. 101-110
[15]. A. K. Jonscher (1983); *Thin Solid Films* **100**, 329
[16]. A. K. Jonscher (1996); *Universal Relaxation Law*; Chelsea Dielectric

Press Ltd, London; Chap 10, pp. 299 – 300