EFFECT OF Ca SUBSTITUTION ON HIGH TEMPERATURE RESISTIVITY OF $Eu_{1-X}Ca_XBa_2CU_3O_{7-\partial}$ CERAMICS(x=0.0,0.1,0.5)

MOHAMAD SHAHRIZAL BIN MOHAMAD SALLEH
2007288854

Final Year Project Report Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor Science (Hons.) Industrial Physics in the Faculty of Applied Sciences Universiti Teknologi MARA

NOVEMBER 2010

This Final Year Project Report entitled **"EFFECT OF Ca SUBSTITUTION ON HIGH TEMPERATURE RESISTIVITY OF $Eu_{1-X}Ca_XBa_2CU_3O_{7-\partial}$ CERAMICS(x=0.0,0.1,0.5)"** was submitted by Mohamad Shahrizal Bin Mohamad Salleh, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Industrial Physics, in the faculty of Applied Science and was approved by,

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En Misbah Hassan

Supervisor

Faculty of Applied Sciences

Universiti Teknologi MARA

Tn Haji Isa Mohd Yussoff

Head of Programme

B.Sc (Hons.) Industrial Physics

Faculty of Applied Science

Universiti Teknologi MARA

En Yussoff Tehran

Coordinator

Final Year Project

Faculty of Applied Science

Universiti Teknologi MARA

Date: 18 NOV 2010

ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah S.W.T. because give me such a great opportunity to do my Final Year Project at UiTM and for His Blessing in giving me strength to complete this final report.

I would like to take this opportunity to express my sincere gratitude to my supervisor, Mr. Misbah Hassan for his keen effort, interest, advice and insightful comments throughout the period of this final year project. Thank you because giving me a good chance for learning and gaining very valuable knowledge during my final year project. May Allah shower His blessing and mercy for his sincere guidance.

Appreciation is also extended to Researchers: Ms Hazwani and persons who are in the superconductor lab, who helped me during the final year project with their technical knowledge and consistence guidance.

I also would like to convey sincere thanks to my whole family especially my father, Mohd Salleh bin Mat Isa and to my mother, Zailan binti Kamaruddin,and to Eleena binti Kharuddin and also to all my friend for their love and sacrifices in ensuring that I could further and complete my study in degree level. Their cooperation, guidance, friendship and helpful in sharing their knowledge and ideas throughout the project is very appreciated. Yours kindness will be stay in my heart forever.

Finally, thanks to those who have contributed directly or indirectly until the completion of this final year project. Above all, I thank Allah the Almighty for His grace, mercy and guidance throughout my life.

ABSTRACT

In this paper, $Eu_{1-x}Ca_xBa_2CU_3O_{7-\partial}$ Ceramic rod with cross sections of 0.65mm x 0.65mm and length 12mm with x=0.0,x=0.1 and x=0.5 were prepared by standard solid state reaction. The rod shows various functional characteristics that give rise to applications in devices such as oxygen sensor. The temperature dependent test were measured by using four point probe method. The data is taken due to increasing of temperature. This sensor operates without any separate heater by taking advantage of the high temperature where oxide ions can diffuse easily. The values of voltage and current were obtained from the temperature dependent experiment. The resistivity value was calculated by using the equation. The result was expressed in a graph, it shows varies data for each sample. With the substitution of Ca in Eu site, the sensor is said to be more sensitive due to increasing of conductivity because of increasing in hole concentration.

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