

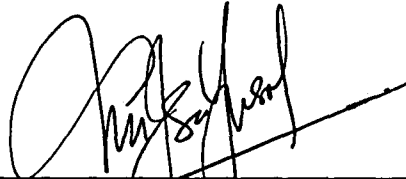
**THE EFFECT OF SINTERING PROCESS ON I-V PROPERTIES OF  
RE123 CERAMIC UTILIZING  
HOT SPOT**

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**Final Year Project Report Submitted in  
Partial Fulfillment of the Requirement for the  
Degree of Bachelor (Hons.) Physics  
In Faculty of Applied Sciences  
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This Final Year Project entitled “**The Effect of Sintering Process on I-V Properties of RE 123 Ceramic Utilizing Hot Spot**” was submitted by Nuzuiza binti Che Amaran, in partial fulfillment of the requirements for the degree of Bachelor of Sciences (Hons.) Physics, in Faculty of Applied Sciences, and was approved by



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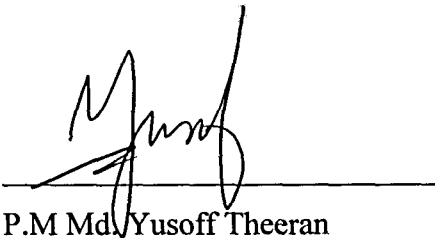
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# ABSTRACT

## THE EFFECT OF SINTERING PROCESS ON I-V PROPERTIES OF RE 123 CERAMIC UTILIZING HOT SPOT

A hot spot which is a local area glowing orange appear in  $\text{HoBa}_2\text{Cu}_3\text{O}_{7-\delta}$  ceramics when a certain voltage is applied to the rod at room temperature. In this experiment the  $\text{HoBa}_2\text{Cu}_3\text{O}_{7-\delta}$  ceramics samples were prepared using conventional solid state method. The experiment was done using three different samples which each sample was sintered at different sintering temperature. The first sample was sintered at 910 °C for 24 hours whereas the second and third samples were heated up until 970 °C and 980 °C respectively before they were be sintered at 910 °C for 24 hours. All samples were tested for its current voltage characteristics using the four point probe method. The current through the rod decreased abruptly when the hot spot appeared with increasing voltage. From this experiment, it can be observed that when the oxygen content increased, the resistivity will decrease. The voltages of the hot spot appearance were determined. The result showed the different current voltage characteristics for all three samples which is sintered at different sintering temperature. By increasing the sintering temperature it will also increase the resistivity of the sample.