

UNIVERSITI TEKNOLOGI MARA

**SYNTHESIS OF PURE Bi-2223
SUPERCONDUCTOR VIA CO-PRECIPIATION
METHOD**

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Thesis submitted in partial fulfillment
of the requirements for the degree of
Bachelor of Science (Hons.) Physics

Faculty of Applied Sciences

JULY 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Superconductor has long been an interest of researchers as the potential it possesses. Superconductor is a material that has zero resistance when reaching its critical temperature which give unlimited electrical conductivity theoretically. The aim of this research is to study the synthesis of pure $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ or BSCCO-2223 superconductor via co-precipitation method. BSCCO or Bismuth Strontium Calcium Copper Oxide is a high temperature superconductor which also extensively studied. The co-precipitation method was chosen is because the method is not widely used by researchers to synthesis superconductors sample due to its tedious steps. No addition is added to the sample as to achieve the aim of this project and only pure Bi-2223 was synthesized. Characterization of the sample was supposedly carried out by XRD, ACS and TGA. XRD is used to observe the physical microstructure of the sample while ACS is used to determine the critical temperature of the sample and TGA is used to analyze the decomposition reactions which allow quantitative composition analysis. However none were carried out due to some restrictions. The sample went through until the sintering process but the end result shown that it was severely burnt. No explanation to why this is happened but it may be because of excessive polishing used during palletizing process.

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