

**STRUCTURAL AND ELECTRICAL TRANSPORT OF $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$
WITH SUBSTITUTION $x=0.00, 0.50$ AND 1.00**

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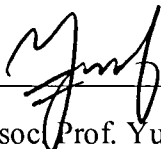
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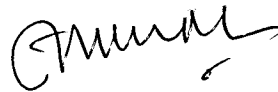
This Final Year Project Report entitled “**Structural and electrical transport of $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ with substitution $x=0.00, 0.50$ and 1.00** ” was submitted by Kamariah Noor Ab Kahar, in partial fulfillment of the requirements for the Bachelor of Science (Hons.) Physics, in the Faculty of Applied Sciences, and was approved by



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ABSTRACT

Structural and electrical transport of $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ with substitution $x=0.00, 0.50$ and 1.00

The effect of calcium (Ca) substitution on the CMR properties of $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ (LCMO) was systematically studied. Samples were synthesized using a standard solid state reaction technique by substituting concentration Ca up to 100%. The microstructure for samples 0%, 50% and 100% was characterized by Scanning Electron Microscope (SEM) using LEO 14551 VPSEM Gemini Scanning Electron Microscope. The microstructure were found are change which the grain size little bit more large as increase the substitution of concentration of Ca. With the increase of concentration Ca substitution, the phase transition temperature determined by standard four-probe method measurement increased to 290K for $x=0.50$, then dropped sharply with higher Ca concentration because the change in double exchange mechanism (DE) and Jahn-Teller distortion (JT). Results are discussed in the relation with decreasing with as an amount of the Ca substituted. The values of resistivity are increase in the LCMO with higher-level concentration ($x > 50\%$) in the substitution of Ca substituted to the samples.