

**FABRICATION OF GLASS-CERAMICS CONTAINING  
FERROELECTRIC NANO-CRYSTALS**

**PATTAMAPORN PRAPITPONGWANICH**

**DOCTOR OF PHILOSOPHY  
IN MATERIALS SCIENCE**

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**THE GRADUATE SCHOOL  
CHIANG MAI UNIVERSITY**

**APRIL 2009**

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**PATTAMAPORN PRAPITPONGWANICH**

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
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THIS THESIS HAS BEEN APPROVED  
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