

**DEVELOPMENT AND EVALUATION OF
TEACHING DEMONSTRATIONS
IN THERMAL PHYSICS**

CHANWIT KAMCHAREAN

**DOCTOR OF PHILOSOPHY
IN APPLIED PHYSICS**

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**GRADUATE SCHOOL
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TEACHING DEMONSTRATIONS
IN THERMAL PHYSICS**

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**A THESIS SUBMITTED TO CHIANGMAI UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN APPLIED PHYSICS**

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THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF
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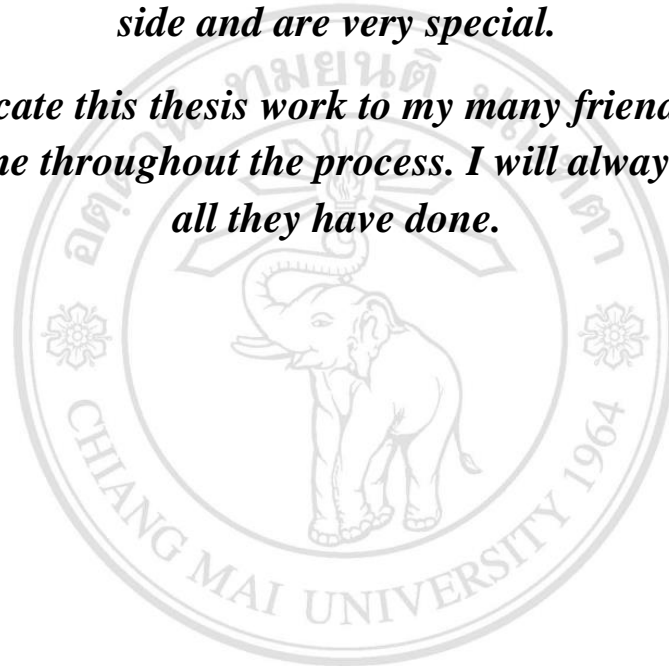
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I dedicate my thesis work to my family and many friends.

*A special feeling of gratitude to my loving parents, Thidapan
and Chayaporn whose words of encouragement.*

*My sister Panphada, my brother Thanapan have never left my
side and are very special.*

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