

**THERMAL CHARACTERISTICS OF AIR FLOW
OVER FLAT TUBE WITH ELLIPSOIDAL
DIMPLE SURFACE**

NOPPARAT KATKHAW

**DOCTOR OF PHILOSOPHY
IN MECHANICAL ENGINEERING**

**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

MAY 2014

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**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF
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