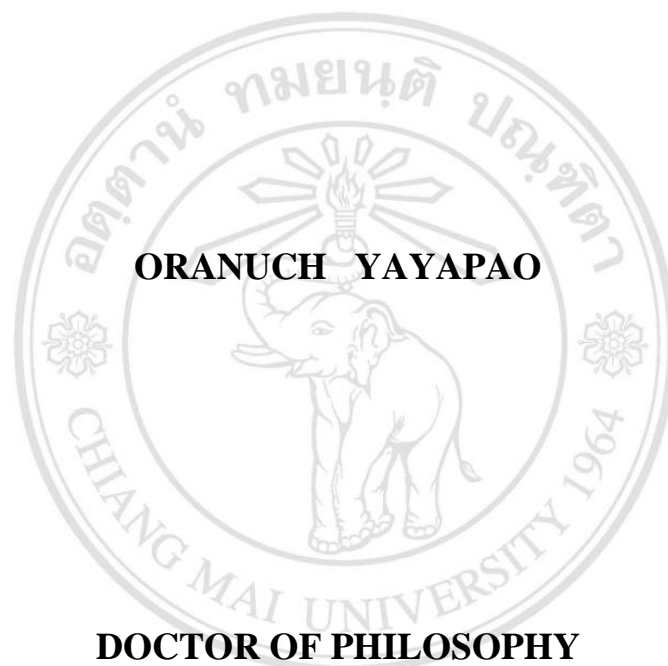


**CHARACTERIZATION OF ZINC OXIDE AND
LANTHANIDE-DOPED ZINC OXIDE
NANOSTRUCTURES SYNTHESIZED
BY SONOCHEMICAL METHOD**



ORANUCH YAYAPAO

**DOCTOR OF PHILOSOPHY
IN MATERIALS SCIENCE**

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**CHARACTERIZATION OF ZINC OXIDE AND LANTHANIDE-
DOPED ZINC OXIDE NANOSTRUCTURES SYNTHESIZED
BY SONOCHEMICAL METHOD**

ORANUCH YAYAPAO

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN MATERIALS SCIENCE**

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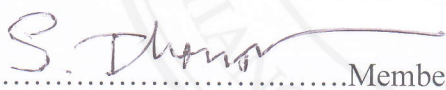
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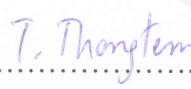
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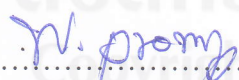
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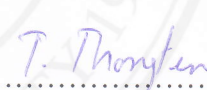

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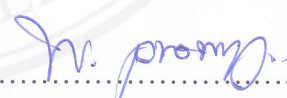

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Oranuch Yayapao