



**THESIS APPROVAL**  
**GRADUATE SCHOOL, KASETSART UNIVERSITY**

Master of Science (Chemistry)

DEGREE

Physical Chemistry

FIELD

Chemistry

DEPARTMENT

**TITLE:** The Partial Oxidation of Unsaturated Hydrocarbons with  $H_2O_2$  over TS-1  
Investigated by ONIOM Method: Formation of Active Site and Reaction  
Mechanism

**NAME:** Mr. Weerayuth Panyaburapa

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