

**SIMULATION OF A PROTON EXCHANGE MEMBRANE FUEL CELL AND  
INTERNAL COMBUSTION ENGINE POWER SOURCE HYBRID SYSTEM**

**WINAI CHANPENG**

**DOCTOR OF PHILOSOPHY  
IN MECHANICAL ENGINEERING**

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