

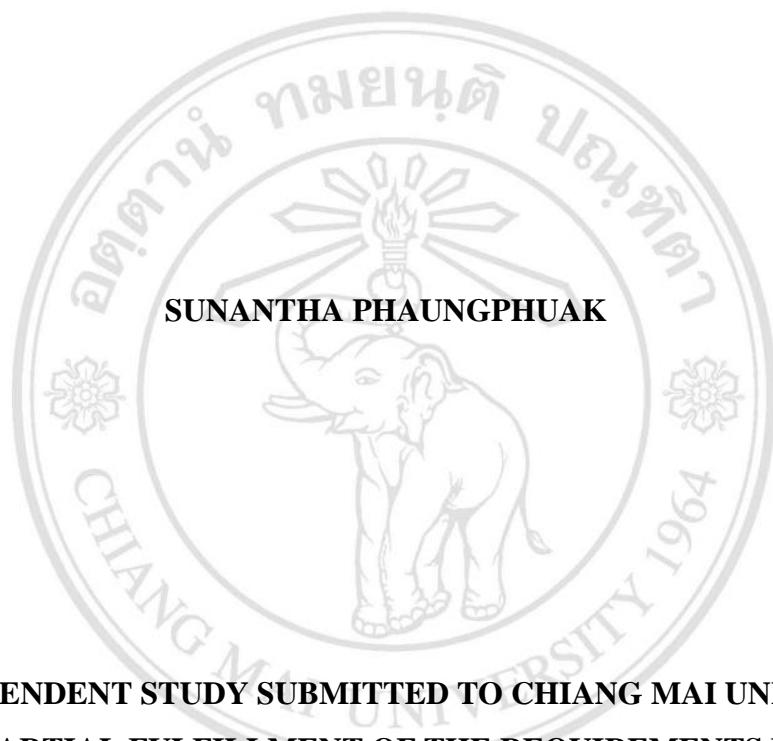
**IDENTIFICATION OF CARBONATE RESERVOIR  
FLUID TYPE USING EXTENDED ELASTIC  
IMPEDANCE INVERSION  
IN BLOCK A, OMAN**



**MASTER OF SCIENCE  
IN PETROLEUM GEOPHYSICS**  
Copyright© by Chiang Mai University  
All rights reserved

**GRADUATE SCHOOL  
CHIANG MAI UNIVERSITY  
DECEMBER 2016**

**IDENTIFICATION OF CARBONATE RESERVOIR FLUID TYPE  
USING EXTENDED ELASTIC IMPEDANCE INVERSION  
IN BLOCK A, OMAN**



**AN INDEPENDENT STUDY SUBMITTED TO CHIANG MAI UNIVERSITY  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF SCIENCE  
IN PETROLEUM GEOPHYSICS**

Copyright © by Chiang Mai University  
All rights reserved

**GRADUATE SCHOOL, CHIANG MAI UNIVERSITY  
DECEMBER 2016**

IDENTIFICATION OF CARBONATE RESERVOIR FLUID TYPE  
USING EXTENDED ELASTIC IMPEDANCE INVERSION  
IN BLOCK A, OMAN

SUNANTHA PHAUNGPHUAK

THIS INDEPENDENT STUDY HAS BEEN APPROVED TO BE A PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF SCIENCE  
IN PETROLEUM GEOPHYSICS

Examination Committee:

.....*He. Jakubowicz*..... Chairman  
(Prof. Helmut Jakubowicz)

Advisory Committee:

.....*P. Wongpornchai*..... Advisor  
(Assoc. Prof. Dr. Pisanu Wongpornchai)

.....*P. Wongpornchai*..... Member  
(Assoc. Prof. Dr. Pisanu Wongpornchai)

.....*Diako Hariri Naghadeh*..... Co-advisor  
(Dr. Diako Hariri Naghadeh)

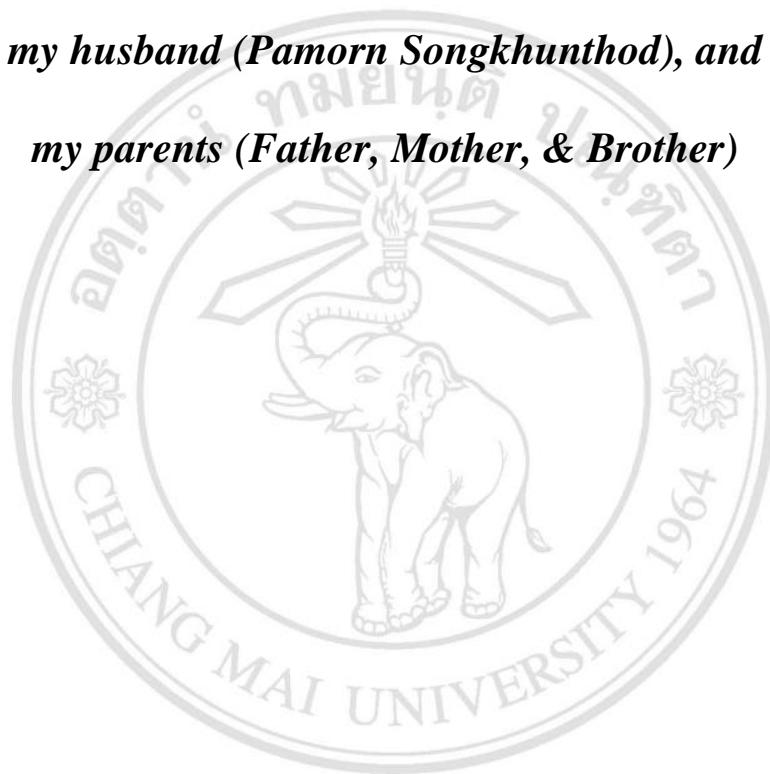
.....*Diako Hariri Naghadeh*..... Member  
(Dr. Diako Hariri Naghadeh)

.....*Suwimon Udphuay*..... Member  
(Asst. Prof. Dr. Suwimon Udphuay)

13 December 2016

Copyright © by Chiang Mai University

**To**  
*my daughter (Sunatcha Songkhunthod),*  
*my husband (Pamorn Songkhunthod), and*  
*my parents (Father, Mother, & Brother)*



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่  
Copyright© by Chiang Mai University  
All rights reserved

## ACKNOWLEDGEMENT

I am deeply indebted to PTT Exploration and Production (PTTEP) Company Limited and their managements for offering me the good opportunity to pursue my Master's degree and for giving me the financial support throughout the scholarships. Moreover, I would like to express my sincere thanks to PTTEP Oman project for providing all necessary data and support for this study.

I would like to express my deepest appreciation to all those who provided me the possibility to complete this report. A special gratitude I give to our advisory committee, Dr. Pisanu Wongpornchai and Dr. Diako Hariri Naghadeh, whose contribution in stimulating suggestions and encouragement, helped me to coordinate my independent study especially in writing this report.

Furthermore I would also like to acknowledge with much appreciation the crucial role of the staff of PTTEP Oman project and GTS team, who gave the permission to use all required equipment and the necessary material to complete this study.

Last but not least, many thanks go to Dr. Christopher K. Morley, and his petroleum geophysics teams at Chiang Mai University including Dr. Diako Hariri Naghadeh, Dr. Jaydeep Ghosh, Ms. Chanpen Silawongsawat, Dr. Niti Mankhemthong and academic officers (Ms. Pannipa Kuntaros, Mr. Anupong Hutawarakorn, and Ms. Siraporn Vipanthusart) for running this program and providing all the required facilities to undertake the study. Thanks Robert Kieckhefer for editing my report.

I would like to express my gratitude to all the members of my family for moral and spirit support during the period of my studies. I have to appreciate all my classmates, who have been friendly and warmly all the time.

Sunantha Phaungphuak