

Acknowledgement

I would like to take this opportunity to express my deepest gratitude and appreciation to all those who have supported and guided me throughout my doctoral journey.

First and foremost, I am immensely grateful to my supervisor, Takahisa Yamato, for his unwavering support, invaluable guidance, and immense knowledge. For these three years, he provided the most excellent scientific research environment, the best platform and resources, so that I can devote myself to scientific research and academic exchange. Without his dedication, I am not able to contribute myself to this area. I am truly fortunate to have had the opportunity to work under his mentorship.

I am also thankful to the lab members: Yuko Okamoto, Akihiro Kimura, Wataru Sugiyama, and fellow researchers: Valérie Belle, Alessio Bonucci, and Véronique Receveur-Breéchet, who have provided a stimulating academic environment and valuable discussions. Their support, encouragement, and intellectual exchanges have been invaluable throughout the course of my research and will be the spiritual wealth of my life.

My heartfelt thanks also go to my mom, Xinhua Huang, and my love, Zhongyu Guo, for their unconditional love, encouragement, and unwavering belief in my abilities. Their constant support and understanding have always been a constant source of motivation, and I am grateful for their presence in my life.

Lately, a motto of Wang Yangming is for myself, "*Knowledge as Action*", to remind myself: "*Keep the enthusiasm for knowledge and research, put the ideas into practice and make the contributions.*"

This page intentionally left blank.