

# Acknowledgements

My long tenure in the fields of atomic physics and quantum optics since 2003 as undergraduate and graduate student have been enriched by the help of many people. Here I would like to take this opportunity to thank the people who have in no small way made the research in this thesis possible.

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After the departure of James, we collaborated with the cQED lab in the spring of 2007. With Hui and Julien, I had the fortune to work with Andreea Boca, David Boozer, Russell Miller, and Tracy Northrup in lab 11. While this experiment has not worked out so well, many inspirations from this collaboration led to our EIT mapping experiment in the summer, which was really fun! Looking back, I realize it was during this period that I had my greatest successes in the lab with my colleagues, not because of the talent of one person but because of the collective efforts among Hui, Julien, and myself. I thank Hui for her patience and for the great collegueship we shared over the years. I would also like to emphasize the significance of Julien's role in my development. In my first year, he helped me understand every details of the experiments through timeless discussions, and later he worked with me as a gracious colleague. His modest attitude of pursuing

science has made a positive impact on my understanding of collegueship.

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In the fall of 2009, Akihisa Goban joined our lab. Simply put, he is a hardworking genius and an exceptionally talented colleague! Upon his arrival, Aki and I spent days and nights in the lab. I am very proud of the experiment that resulted from this collaboration. Apart from its significance, the 400-hour long integration time for the data presented in this experiment alone testifies to the synergy of our collective efforts. Aki pursued a number of projects with me in this thesis, and often times I was moved by his aspiring character of diligence and modesty. I thank him for his super hard work with excellence and for sharing all the excitements with me in the lab. In 2010, a talented summer intern, Lucile Veissier, joined our lab for a small project to induce a phase shift on the collective excitations. I thank her for the hard work and patience.

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