

Acknowledgements

I would like to offer my appreciation to the many people who made my time at university an enjoyable experience. I will begin by thanking my PhD supervisors, Carlo Barenghi and Nick Parker, for their constant enthusiasm and for never having fear of exploring an interesting tangent. I also thank EPSRC for financially supporting this project.

Thanks to those who were there while I was studying for the MMath: Sam Hunter, Josie Kendall, Seb Mellor, Holly Moffat, Maz Phillips, Chris Slattery, Jack Sykes, and more, for encouraging me to come out of my shell and making lectures more fun than they have any right to be. I particularly send my thanks to Becca Nicholson, who first convinced me to go for the PhD. I also thank the homeslices: Ben, Quinn, Bone, Chris, Ant, and Murray, for the many hours of fun both online and in real life.

Thanks to those I met through various NUTS events: Nige, Ben, Stevie, Gemma, Liz, Hep, Dan, Schwarz, Chief, Ash, Jacob, Ollie, Charlotte, Matt, Steve, Rach and many more, for all the good times, introducing me to live theatre and comedy, listening to me prattle on about physics, and for coming up with “Teggers”.

Thanks to those who were there when I first started: Holly Ainsworth, Stacey Aston, Matt Buckley, Laura Cole, David Cushing, Tom Fisher, Fred Gent, Victoria Hardy, Sam James, Christian Lawson-Perfect, Nick Loughlin, Keith Newman, Jamie Owen, Rob Pattinson, Lucy Sherwin-Robson, Gavin Whitaker, Nina Wilkinson, and more, for being friendly, welcoming and supportive. Further thanks to those who later joined: Robbie Bickerton, Tom Bland, David Brown, Paolo Comaron, Liam Dobson, Can Evirgen, James Hollins, Yameng Ji, Ste Johnson, Sarah Jowett, Aamir Khan, Katie Marshall, Joe Matthews, Em Rickinson, David Robertson, and all the other PhD students, for the discussions, fun times, and for distracting me when I needed it most (or in the case of David Cushing, for distracting me when I needed it the least).

I thank Michael Beaty, Chris Graham, John Nicholson, and Anthony Youd, for keeping the network working smoothly and for patiently helping with anything computers.

Thanks to the superfluid group: Joy Allen, Andrew Baggaley, André Cidrim, Matthew Edmonds, Luca Galantucci, Donatello Gallucci, Fabrizio Larcher, Kean Loon Lee, Nick Proukakis, Angela White, and more, for their ideas, constructive criticism, and vast knowledge and experience. I also thank Yuri Sergeev and Davide Proment for taking the time to examine the content of this thesis.

To my Mum and Dad, Peter, Cheryl, and Zoe: I thank you for all the love, Sunday dinners, computer problems, and for reminding me where my roots lie.

Finally, I send my deepest love and greatest thanks to Hayley Moore, for her unending patience, kind support, and for always being able to make me laugh.