Acknowledgements

Four years is a long time, and during this time I learned many lessons, not all of them related to Astronomy. This has been a transforming time for myself. Being around so many talented people at the observatory have made me get to know myself better, my strengths and weaknesses, and get a much clearer idea of what I would like to do with my life than I had before. There are also many lessons to be learned from being a foreigner, living in a country where things are done in a different manner than what I have learned to take for granted. The biggest challenge I have encountered during these four years was the solitary nature of the work, and I would like to thank Rob Wiersma, Simon Albrecht and Martin Depken for their pleasant companionship, which helped a great deal.

This work could not have been completed in time without the help of many people, who have made every effort to allow me to do my work without interruption. First, I would like to thanks the human resource department and in particular Nori Poppeleurs for getting my papers right with the local authorities and for the quick action they have taken whenever I needed them. The people at the Leiden Observatory are the friendliest people I have ever encountered in any working environment. Thanks for the computer support group, David Jansen and Tycho Bot, who have been extremely efficient in solving my computer problems. I thank Jan Lub for fixing up all the financial issues with a minimum of fuss for myself. Last but not least many thanks to Hilke Reckman, Marcel Haas, Eric Laan, Amir Vosteen, Liesbeth Vermaas, Huib intema and Freeke van de Voort for helping me with the Dutch summary.

But most of all, I would like to thank my parents, Ellen and Erez. I dedicate this thesis to them.
I was born on February 4, 1976 in Petah-Tikva, Israel. From an early age, I have been fascinated by the workings on the world. Born to a mother who was one of the first women to ever study physics in Israel in the later sixties, I was often given books to read about scientific discoveries which have had an influence on me all my life.

After finishing my three years as a soldier, I travelled as a backpacker in Asia for a year, a journey that has had a deep influence over my outlook on life. In 1999 I started studying Physics in the Hebrew university of Jerusalem. After graduating in 2002 I started doing my Master’s degree. In 2003 I moved to Tel Aviv University, where I completed my degree in 2005. During my time as a student I was also very busy with political and human rights work. Mainly advocating for the recognition of the freedom of conscience in Israel, and futilely working towards ending the occupation.

In 2005 I moved to the Netherlands and begun my PhD under the supervision of Dr. Walter Jaffe and Prof. Huub Röttgering. I am currently working for the Netherlands organisation for applied scientific research (TNO), as innovator.