Acknowledgments

This thesis is not only the culmination of four years of my own work, but is also due, in no small part, to the interaction, assistance, support and friendship of many people. I take this opportunity to thank them.

First and foremost I offer my sincerest gratitude to my principal supervisor, prof. dr. Léon Koopmans whose expertise, understanding, and patience, added considerably to my graduate experience. He supported me throughout my thesis with his patience (which, at some moments, he showed in exceedingly high degrees), whilst allowing me the room to work in my own way. I appreciate his vast knowledge and skill in both theoretical and observational astrophysics, and his assistance in writing reports (i.e., grant proposals, postdoc applications and this thesis). One simply could not wish for a better or friendlier supervisor.

But as if such luck was not enough, I was fortunate to have two great co-promotors as well. The good advice, support and friendship of my second supervisor, prof. dr. Saleem Zaroubi, has been invaluable on both an academic and a personal level, for which I am extremely grateful. It does not matter if moussaka (musaqqa’ a) is greek or arabic. It was in any case enjoyable eating it. I would also like to thank my other promotor, prof. dr. Ger de Bruyn for the many useful discussions, during the course of my PhD research. His vast knowledge of every aspect of radio astronomy was always amazing me, as well as his ability to perform calculations in his brain so fast and being able to provide useful insight in every branch of astronomy and astrophysics.

I must also express my gratitude towards the members of the manuscript committee, prof. dr. Wim Brouw, prof. dr. Ue-Li Pen and prof. dr. Marc Verheijen for taking the time to carefully read and review this thesis. Special thanks to Wim for providing a large number of useful comments during the whole course my PhD and the last stages of the manuscript. His personal story during the construction of the WSRT telescope had been inspiring during all this time.

I would also like to acknowledge dr. Sarod Yatawatta for his support and friendship throughout most of my stay in Groningen. His indefatigable efforts are indispensable for the LOFAR project. Our ultra-brief discussions always proved quite fruitful. I have to admit that I still do not have the answer to the ultimate question “Why?” but I am actively looking for it. I also promise you that I will start running.

My sincere thanks to the Rijksuniversiteit Groningen, the “Samenwerkingsverband Noord-Nederland”, EZ/KOMPAS and the Leids Kerkhoven-Bosscha Fonds for providing the funds to support my PhD research.

My deepest appreciation to prof. dr. Panayiotis Stavrinos, who was my undergradu-
ate thesis supervisor, but also a source of inspiration. I learned many things about mathematics and differential geometry close to him, but most importantly I gained intuition and feeling about mathematical constructions that would otherwise be abstract.

I am most grateful to the fellow members of the LOFAR EoR KSP. Many thanks to Michel Brentjens for sharing his knowledge of the LOFAR system, guru-Pandey-sir-ji-saab, Gianni Bernardi and Geraint Harker, whose linguistic comments were invaluable. Vielen dank André for providing the best translation into Dutch of my summary. I am sure that no other German person has such a strong command of the Dutch language. I would also like to thank the international members of the LOFAR EoR project: Benedetta Ciardi, Garrelt Mellema and Joop Schaye, as well as the other associate members.

Throughout the last four years I had many opportunities of scientific and technical interactions, which often resulted in ideas and suggestions; I particularly enjoyed the lively discussions with J. Hamaker, J. Noordam, W. Baan, Olaf Scholten, S. Wijnholds, O. Smirnov and G. van Diepen. The same can be said for the members of Léon’s cosmology group: Alicia Becrano-Alba, Mateo Barnabé, Oli Czoske and Oscar Antuñano-Vaquero and Chiara Spiniello and Simona Vegetti (the most girlish “person” of our group who cooked amazing tartiflette and rasberry cheesecakes).

Furthermore I would like to thank the people from the Kapteyn Institute for their interest and support of my work and for the inspiring and social atmosphere they created during my stay. Moreover, it is very gratifying to realize that my cultural and scientific background has been substantially enlarged by working with such a nice group of people. I am grateful to the director of the institute, Thijs van der Hulst for his support and for ensuring that the institute remains such a splendid setting. Many thanks to the Bob, Marco, Mariano and Amina, Reynier and the other staff members. I appreciate the nice time we spend together with fellow students Antonella and Facundo, J.P., Mathias, Thomas, Boris, Yan-Ping and Guobao, Pablo, Esra and Christian. The practical support of the manager Lucia, the secretaries Hennie, Jackie and Ginneke and the computer group Eite, Hans, Martin and Wim was extremely valuable.

It was a great pleasure to share the office with two amazing friends, machas and knights of the order of Zarouib: Rajat Mani Thomas and Vibor Felipe Jelić. I really enjoyed the collaboration with you, that extended much beyond scientific matters. I cannot forget all the adventures that we have been through together, around the northern hemisphere. I am not going to provide a list of those adventures and certainly I would not do so in English, as future employers might find this text through a google search. But I am sure for one thing: the list is going to be extended. Vibor, let us call each other at 8 every morning to go Dwingeloo. Rajat, superbedankt and be a free man. Whenever you decide to join the unholy trinity again, we are waiting for you. There are still too many things to do in UVBRICKS. I could not forget to thank your other half, dr. Laura Virginia Sales (known as mu-mu (english) or moe-moe (nederlands)), who was the first female person to bear the title machi. Thanks to her I learned the true etymology of words such as helicoptero, archipelago etc.

I want to give a big thank you to my office neighbor Mark, to Koshy Georgeous and to Chiara (again) for those great moments that we shared.

Thanks to Piray, Leonardo, Johahn, Bi RongRong, Milica, Niyaz, Andy, Regis and many others for creating a fun and very enjoyable ambience not only in Groningen but also in the places we might have traveled.
As you might have noticed already I skipped mentioning one of the student members of the EoR group. I did that deliberately so that I take the opportunity to give her a special thanks. Thanks to Sanazam (also known as shirinak) who came so unexpectedly in my life. Your support in the final stages of writing my thesis was deeply appreciated and I regret that I did not have enough time to dedicate to you during this period. Baa-bate tamaame ancheh ke baraayam anjaam daadi, eshghat, hemaayatat, va tavajohat mannoonam.

Finally, because it is nearly impossible to mention here everyone who has in one way or another helped me during my PhD adventure, I give you my most sincere thank you all!