Acknowledgements

I would like to thank first Prof. Peter Sloot to whom I am especially indebted for making possible the MSc degree that allowed me to start this journey in science. With such a diverse of the group and with such an attractive list of courses, I could not resist to the possibility to continue my education in Amsterdam. Thanks to all the SCS staff.

My daily supervisor Dr. Jaap Kaadorp has also been of enormous influence. Were not for his endless enthusiasm about computational biology, probably I would not be where I am today. Jaap has been perhaps the most accessible supervisor ever. After hearing stories from other peers in the totally opposite situation, I thank him very much for all his support. He never said no to any request. Also a little bit of his enormous reservoir of optimism has leaked into me, it has taken some time, but now it is there. With him I also have learned a lot about how to handle the ups and downs quite customary during this kind of work. And his enormous empathy and wise experience has been of utmost importance to accomplish this Ph.D. Additionally, Joke Blom, Hans Westerhoff and Mark Peletier contributed enormously to make possible the funding of my research. Joke not only has been but also a very precise supervisor in the first couple of years, but she also has been a great companion on the scientific weekends we had. I am greatly indebted to Frank Bruggeman who made possible the exciting research on two-component systems. His vast knowledge has always astonished me. His never-ending enthusiasm has been essential to the finalization of this work. Every time I went to him with an idea, or the idea of an idea, you immediately started to draw connect with a lot of stuff, and it did not matter the place nor the time. Working with him has been a great pleasure.

Accomplishing this thesis would not have been possible without the support and friendships outside the office. Dear friends: How can I express how grateful and happy I am to have met you. Not even all the hours we have spent together suffice, so I will continue giving back to you all you have given me during these hard years. The first person to know that I was going to purse a Ph.D was Esa. Meeting Esa has been one of the most amazing and influential experiences I have had. We had very good times back in Helsinki. You truly supported me in my decisions and have been there always without failing for a single moment. Also my friends, Juanjo, Vanesa and Carol, have been taking care that I would have a good time in my flash- visits to my homeland. Even in the geographical distance, they have supported me.
Once I got in the office I got to know a great bunch of people. Guys you have made the daily work, which many times I described as an emotional rollercoaster, a very worthy experience. Especially the guys that were always in for a late lunch, or being nearly always free (nearly not in the last two years) to have a break and talk about everything, or dream about our future or give moral support. Yves, Alfredo, Carlos, Thomas and Maciej, you have been the best office mates one can expect to have. And thanks for the surrealistic parties we had. I would like to specially thank Yves, who has been my office mate since day one until the very last moment. I really hope one day we make true all the great ideas we have been talking about so much. I am also especially indebted to Maciej, who has been working with me during most the time. Your ample wisdom has been key on many occasions; your friendship, invaluable. All of you have also given me very good times outside the office, having a coffee while solving the problems of the world or building the most amazing research company, sporting or making possible some of the most bizarre and fun parties.

Also I appreciate the occasional chats I had with the rest of the crew in the department: Qiu, Lilit, Göhkan, Elena, Michael, Max, Nol, Marteen, Breandáin, Alfonso, Alfons, Eric, Syed, Drona, Michael our secretary Alex and our neighbours, the astronomers, Alessia, Derek and Evghenii, you all are great colleagues. David, thanks for helping me with translation. And of course, all of this would not be possible if one person was not organizing all the little administrative details. Erik, our amazing secretary, I have known him since my student days and you have never failed to give the right support. Your kindness has made dealing with bureaucracy a piece of cake.

Beyond the office, I have met great people in Amsterdam. What now seems a long time ago, thanks to my rowing mates, Jaap, Chen and especially coach Peter; rowing with you was so much fun and so relaxing. I still have to get my skiff diploma!

A great deal of my spare time has been spent with my Spanish friends; most of them have returned by now. The time with you was so good that often it made me feel like I never left home. I am especially delighted to have met amazing people that have helped me in ways that they would have never expected. Juanra and Nuria, you have been a great support, and inspired me to dream for the best. Although you moved back to Barcelona, your legacy still remains here. What can I say to the two most amazing friends that have been by me in the hardest times and, even better, have made possible the best times? Iñigo and Dani, there are no words to thank you for all the support and happy moments we have spent. Your infinite capacity to make fun out of any situation put a big smile on my face in those stressful days. Chikipah!

Another great deal of my spare time has been spent with my dutchies or the new dutchies. With them I have felt a little bit more integrated, and I have learnt about their culture. Taco, your optimism has been very important in my initial doubts about whether to continue or not with this work. Robert, Frank Noordkamp, Frank Himsel, spending time with you is always great. Thierry, you have been so patient while learning Spanish. Nelson and Lisa, you are simply fabulous. Ronald and Denis, we have to keep stepping. Thor, I still remember...
our time as students in Amsterdam; you are a very inspiring person. Dao, its always so fun to be with you, you never stop smiling. David, thanks for helping me to improve my skills in your native language; you are not fired.

And the most dearly acknowledgments are for my family. Mare, pare, Aurora, Erik i Marta, tot aquest treball us el dedico perquè sense vosaltres ni començar ni acabar aquest treball hauria estat possible. També el vull dedicar als meus iaios i iaies, primos, tio Javier y tia Cruz, por ser la major família que se puede tener.

Thanks to all of you!