

# Acknowledgments

I would like to acknowledge the people who have supported me during my work on this thesis.

**Dr. Heike Rauer, DLR** For introducing me to cometary science, advising me for four years and giving me access to the excellent Hale-Bopp dataset.

**Dr. Dan C. Boice, Southwest Research Institute** For his invaluable assistance during my stay in San Antonio - arigatougozaimasu, Dan-san

**Dr. Walter F. Huebner, Southwest Research Institute** For his invitation to work at Southwest Research Institute and for many inspiring suggestions

**Prof. Gerhard Neukum, Freie Universität Berlin and DLR** For giving me the opportunity to work on this interesting subject

**Prof. Erwin Sedlmayer, Technische Universität Berlin** For interesting suggestions

**Dr. Julianne Moses, Lunar and Planetary Institute** For providing reaction rates for the  $C_2$  and  $C_3$  photo-chemistry

**Dr. Robert Wu, Jet Propulsion Laboratory** For providing unpublished laboratory measurements of absorption cross sections of  $C_2H_2$  at low temperatures

**Dr. Jörg Knollenberg, DLR** For many interesting discussions over even more cups of coffee

**Stephanie Werner, Freie Universität Berlin and DLR** For her thorough proof reading

**My wife Halka** For her endless patience and her support of my ambitions

The observational material presented in this work is partly based on observations collected at the European Southern Observatory in La Silla and Paranal, Chile.

This author of the work was supported by the Deutsche Forschungsgemeinschaft, DFG project number Ra 714/2-1,3.