## ACKNOWLEDGEMENTS

In the first place, I would like to thank Prof. Dr. Jörg Eichler for giving me the opportunity to work in the highly interesting field of relativistic ion-atom collisions. His constant support and encouragement contributed significantly to the success of this work.

I am thankful to Prof. Dr. Volkard Linke for his interest in my work and his readiness to read and evaluate this thesis.

For the few, but important, discussions and his valuable suggestions I am grateful to Dr. Dorin C. Ionescu. For discussions in particular about field theory on various occasions I thank Dr. Günter Plunien.

The members of the Theoretical Physics Section of the Hahn-Meitner-Institut always have been pleasant and helpful colleagues, taking an interest in the progress of my work. Furthermore, I would like to thank those employees of the Hahn-Meitner-Institut who gave their permission for the use their personal computers for my calculations.

Financial support by the Deutsche Forschungsgemeinschaft and the Hahn-Meitner-Institut Berlin are gratefully acknowledged. Furthermore, access to powerful computing facilities, granted by the Konrad-Zuse-Zentrum für Informationstechnik Berlin and the John von Neumann-Institut für Computing in Jülich, is appreciated very much. The Max-Planck-Society I thank for the opportunity of a one-month stay at the Max-Planck-Institut für Physik Komplexer Systeme in Dresden.

For reading the draft of this thesis and their help to improve it I thank Prof. Dr. Jörg Eichler and Dr. Karl-Kuno Kunze.

My special thanks belong to Minette von Wickede for her constant support, love and patience.