

Acknowledgments

In this thesis, the work in chapter 7 was carried out at the European Synchrotron Radiation Facility (ESRF), Grenoble. The data for Chapter 5 and Chapter 6 were obtained at the Paul Drude Institute for Solid State Electronics in Berlin. However, the data analysis and scientific interpretation were performed without any involvement of scientists from the Paul Drude Institute.

This thesis would not have been possible without the help of many people.

First, it is a great pleasure to thank my supervisor, Prof. Brewer, for giving me the chance to complete this thesis and for his support and patient guidance.

Dr. J. Tomm of the Max-Born-Institute Berlin provided a critical suggestion for the contents in chapter 6 when I was perplexed, and many revisions for this thesis. Dr. Tomm also helped to translate the abstract from English to German.

Dr. Gianluca Ciatto introduced the technique of EXAFS to me as well as the philosophy of its physics. He also helped on the revision of chapter 7 in this thesis.

Thanks to Dr. Manfred Ramsteiner, for his great help on the Raman BS characterization of the samples studied in Chapter 6.

Dr. Gregor Mussler, who provided the samples studied in Chaps. 5 and 6 of this thesis and gave me much help when I first started the work.

Prof. Dr. H. Grahn suggested the topic of dilute nitrides of the thesis.

Dr. L. Schrottke has helped on the PL measurement.

Dr. A. Trampert has helped on the TEM measurement.

Prof. Dr. K. Ploog has given me the chance to start the thesis.

Thanks to Dr. S. Pascarelli and Dr. J. Zegenhagen at ESRF for their support on the second part of the thesis.

To my friends at PDI and ESRF, who are so helpful and encouraging, and who gave me so much joy in this period.