

Acknowledgements

The author is deeply indebted to Professor Kohei Furuno for many discussions, much helpful guidance and valuable advice throughout this work described in this dissertation.

The author would like to express her sincere gratitude to Professor Toshitake Kohmura for his encouragement as well as many important suggestions.

The author is also grateful to Professor Hiroshi Kudo and Associate Professor Kameo Ishii for many discussions and helpful suggestions.

The author wishes to express her sincere thanks to Mr. Hideshi Fukumoto for his encouragement as well as many helpful suggestions throughout this study.

The author also thanks Mr. Yoichi Ose for many valuable discussions and helpful suggestions from the beginning of this study.

The author would like to acknowledge the advice and encouragement of Dr. Renzou Takeda and Dr. Tadashi Fukushima.

It is a great pleasure to acknowledge the collaboration of colleagues in Hitachi Research Laboratory, Central Research Laboratory, and the Instrument Division, Hitachi, Ltd.

Finally, the author wishes to express her thanks to her friends and family for their understandings and continuous encouragement.