

## ACKNOWLEDGEMENTS

It is hard to overstate my gratitude to my Ph D supervisor, Professor Erdogan Kiran. Without his inspirational guidance, his enthusiasm, his encouragements, his unselfish help, I could never finish my doctoral work in Virginia Tech. For me, he is not only a teacher, but also a lifetime friend and advisor.

My special thanks go also to the members of my advisory committee, Professors Richey Davis, Eva Marand, Paul Deck and Timothy Long for their guidance and helpful discussions. Without great help from Professor Paul Deck, I could not finish the NMR tests.

I am grateful to Mr. Michael Vaught, Riley Chan, and Wendell Brown for their excellent work on helping me building and maintaining the experimental equipments. The secretaries of the Chemical Department, Diane Cannaday, Chris Moore, and Jane Price are thanked for their help. I thank Mr. Stephen McCartney for the SEM tests.

I thank my fellow students and the visiting scholars in Professor Kiran's group, Wei Zhang, Jian Fang, Cigdem Dindar, Frank Schuch, and Professor Sangdo Yeo for their help and support.

Finally, I want to express my appreciation to my parents, Hong Liu and Huanying Dai, and my brother Lun Liu, for their love, understanding, patience, endless support, and never failing faith in me.