ACKNOWLEDGEMENTS

It is with unbounded gratitude and heartfelt happiness that I wish to bestow thanks on each and everyone for their remarkable encouragement and support.

I am in dearth of words to express my profound thanks and indebtedness to my guide Dr. K. Palaniradja, Associate Professor, Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry for his excellent guidance, perspective criticism and valuable suggestion rendered from the very first day I registered for my PhD programme. My work has been moulded under his excellent supervision, critical acumen, constant encouragement and inspiring discussions. It is an honor to have worked with and learned from him.

I would like to put on record my deep felt gratitude to Dr. V. Prithiviraj, Principal, Pondicherry Engineering College, Puducherry for all the facilities that he has extended throughout my work.

I sincerely thank Doctoral Committee members Dr. H. P. Patil, Professor in Mathematics, Pondicherry University and Dr. T. Senthilvelan, Professor and Head, Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry for their useful suggestions and expertise during the course.

I owe a great deal to Dr. N. Alagumurthi, Professor, Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry for his advice in formatting this dissertation and the personal attention he extended throughout the course of my research.

I sincerely thank Dr. G. Balaganesan, Scientific Officer, Composites Technology Centre, Department of Aerospace Engineering, I.I.T Madras for his wide experience in the field of nanocomposites, his fruitful interpretation of experimental data and his great humanity, encouragement, inspiration and incisive support. I owe and offer my deep sense of gratitude to him for his genuine and stimulating discussions without which it would not been possible to carry out this research.
I would like to thank the staff members Mr. P. Senthil Kumar and Mr. R. Palanivel of the Composites Technology Centre, Department of Aerospace Engineering, I.I.T Madras for their invaluable suggestions and support.

A special thank to Mrs. K. Guejalatchoumy, Assistant Professor, Department of Humanities and Social Sciences, Pondicherry Engineering College, Puducherry for her precious suggestion, support and her valuable assistance for the thesis preparation.

I would like to extend my gratitude to Dr. T. Kaliyappan, Associate Professor and Dr. S. Vijayalakshmi, Senior Instructor, Department of Chemistry, Pondicherry Engineering College, Puducherry for their incisive suggestion, support and encouragement.

I express my sincere thanks to all the teaching and non teaching staff of the Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry for their timely suggestions, healthy criticism and word of motivation throughout the course of this research.

A special and warm expression of gratitude is reserved for Mr. J. Rajasekaran Das Physical Director, Department of Sports and Education, Puducherry for generously extending his financial support, valuable suggestions and motivation.

Most importantly, my deepest thanks go to Mr. S. Gopalakannan, Assistant Professor, Adhiparasakthi Engineering College, Melmaruvathur for his support, encouragement, dedication and inspiration.

Finally, I wish to express my thanks to my loving parents, brothers and friends for their encouragement and support throughout my life and education. Without them, this dissertation would not be possible.

A. THIAGARAJAN