ACKNOWLEDGEMENTS

To the persons who accompanied me to this world of success. It is a great moment to convey my gratefulness to all those who held me to this highest degree.

I would like to thank Prof. R. Sethuraman Vice-chancellor, SASTRA University with a deep sense of gratitude for providing me an excellent opportunity to pursue my research career in this esteemed university.

I would like to express my foremost and sincere gratitude and thanks to my research advisor Dr (Mrs) K. Uma Maheswari towards this work, although I feel that these words are inadequate. Her perpetual energy and strong enthusiasm for research, great curiosity towards science and enormous encouragement, have always been my source of inspiration, throughout my research career in the Centre for nanotechnology and Advanced Biomaterials in SASTRA University. The five-years of research experience with her can be considered as my life treasure which will continue motivating me to face any difficult situations and challenges in the future.

I would like to thank my Co-research supervisor Dr. R. John Bosco Balaguru, Associate Dean, SEEE for his invaluable support. He gave valuable advices at right times and helped me a lot towards research. He was always accessible and willing to guide and energize his students towards research. I feel extremely privileged to have worked with such a person and it is a pleasant experience.

I would like to express my humble gratitude to Dr. S. Swaminathan, Director, CeNTAB, SASTRA University for his immeasurable support throughout the research.
I also owe a huge debt of gratitude to my doctoral committee member, Dr. Lakshmi Narayanan, Raman Research Institute, Bangalore who provided me with his encouraging and constructive feedback. I would like to extend my sincere thanks to Dr. K. Sridharan, Dean (SCBT), Dr. Thiagarajan Raman, SAP, SCBT, Dr. M. Vijayalakshmi, Dr. P. Brindha (Dean i/c CARISM), Dr. S.N Srivastava (Registrar), Dr. K. Thiagarajan, Dean (Research), Dr. R. Chandramouli, Associate Dean, SoME, Dr. K.S Rajan, Associate Dean (Research) SCBT, Dr. M. Sridharan (EEE), and Dr. P. Meera for their constructive feedback and valuable suggestions. All these people imbibe a lot of enthusiasm and optimism towards research.

I would like to extend my sincere thanks to the Department of Science and Technology, India (DST/TSG/PT/2008/28), for providing me the financial support.

I take this precious opportunity to thank few of the inspirational persons, who motivated me for doing research. First of all, I would like to thank Dr. S. Velmathi, Associate professor, NITT who is my research mentor of Masters’ degree. Her interest towards research made me to take up this research career and hence I am extremely thankful to her. Many acknowledgements are extended to these great people Dr. N. Sulochana (Professor, NIT-Puducherry), and other NITT faculty members Dr. L. Cindrella, Dr. G. Venkatesa Prabhu, Dr. R. Karvembu (HOD), Dr. V.M. Biju, Dr. S. Anandan who motivated me towards research. I also extend my thanks to my under-graduate class teacher Dr. R. Padmini, Associate professor, Holy Cross college-Trichy, who made me fascinated towards Physical chemistry and especially electrochemistry. I also thank my other teachers namely
Dr. Ms. Mangayarkarasi, Ms. Theramma Thomas, and Mrs. Beatrice Cherian for their impressive and inquisitive chemistry teaching.

I would like to acknowledge the financial, academic and technical support of the SASTRA University. My time at SASTRA University, was made enjoyable in large part due to my friends whom became a part of my life. I have been fortunate to come across many funny & good friends, namely Dr. S. Anuradha (AP-R), Surya, Suganthi, Kirthana, Janani, Dhivya, Pandeeshwari, Sai Varsha, Gayathri, Banu, Baranya, Noel, Aarthi, Manasa and Priya. I also thank my colleagues namely Lakshmi, Shaswath, Shabir, Krishna Kumar, Dhiraj, Balaji, Sushanth, Jaidev, Dhaksh, Puru, Rajesh for the friendly environment.

I take this opportunity to thank my husband Dr. G. Sakthivel, who always shows me the positive side of life. He understood me in all the situations and kept me going in research. He provided me with his immense moral and research support. I am really blessed to have such a life partner.

A penultimate thanks goes to my sincere parents. Really they are a gift by god to me. They left me in my way of interest and never compelled me towards their interest. They gave me full freedom to do things. They shared both my good and times of hard too. Their words of enthusiasm led me to this peak of success. They extremely understood me, even though I was not able to spend much time with them. They are among the very few parents who contributed their entire life towards their children. Their dedication is such that my every step towards my success is really because of them alone. To them I dedicate this thesis. I also thank my sister, Bhuvana and brother Suresh for their immense support throughout my career.
Last but not the least I would like to thank my father-in-law, mother-in-law, my in-laws, and my brother Mr. S. Somasundaram for their great support as this dissertation would not have been fulfilled without their contribution. They understood me well even in the difficult times and supported me. I am really fortunate to have these people in my life.

I finish with a final silence of gratitude for my life to the almighty.

Thank you.

Kavitha Thandavan