

PREFACE

For more than seven years I have been heavily involved in various aspects of nontopological solitons, particularly those inspired by the Friedberg-Lee model of quarks, gluons and scalar fields. During that period, I have been fortunate to have a number of superb collaborators with whom I shared the joys and frustrations of discovery, and from whom I learned as well as, I hope, contributed. I have borrowed substantially from those collaborations in preparing this monograph. I have frequently paraphrased or quoted from our publications. Therefore, let me begin by expressing my grateful thanks to Drs. J. Achtzehnter, M. Bickeböller, M. C. Birse, J-L. Dethier, G. Fai, R. Goldflam, E. M. Henley, R. Horn, G. Krein, M. Li, E. G. Lübeck, H. Marschall, R. Perry, H. Pirner, J. J. Rehr, A. Schuh, F. Stancu, P. Tang and A. G. Williams. Special thanks are due Drs. Stancu and Williams for a thorough reading of the complete manuscript, providing final corrections and suggestions. I am indebted to Prof. W.-Y. Pauchy Hwang for introducing me to soliton models. I also wish to acknowledge the kind hospitality of the Lawrence Berkeley Laboratory and the Stanford Linear Accelerator Center, where I spent my sabbatical leave during 1987-88 when this book was written.

Perhaps the simple title of this work is actually pretentious, for I have not attempted to cover the broad field of nontopological solitons. I apologize to those whose work I may have slighted. Since by definition a monograph covers a particular subject in depth, I have chosen to concentrate much of the material on those topics with which I am most familiar by virtue of my own involvement, namely Friedberg-Lee type solitons bags. Nevertheless, I hope that this work will find use beyond the specific applications presented here, for much

of the methodology is relevant to a variety of problems in relativistic field theories and collective dynamics. I would like to call particular attention to the sections dealing with coherent states, projection and boost, generator coordinates, and gluon (Maxwell) propagators in a dielectric media.