

# Preface

This book gives a concise review on preparation, functionalization and applications of polymer membranes in biotechnologies including membrane chromatography, membrane-based biosensors and bioreactors for enzyme catalyzed reaction as well as for waste water treatment.

After a general review of membrane separation process in Chapter 1, preparation methods of polymeric membranes are briefly discussed in Chapter 2. The book will discuss how to yield reactive groups on chemically inert polymer surfaces in Chapter 3, and how to covalently immobilize functional molecules (ligands) especially protein molecules on the polymer surfaces in Chapter 4, with considerate attention given to reaction mechanism. Chapter 5 will introduce the application of affinity membrane chromatography, with necessary chromatography background and the theories. Finally, in Chapter 6, membranes used in biosensors and gas sensors, enzymatic membranes used as biosensor and bioreactor, and membrane biosensor for waster water treatment will be discussed.

The book will be a useful introductory text book for graduates and gresearchers whose work is relevant to preparation and functionalization of polymeric membranes towards various applications in biotechnology and bioengineering.

*Zuwei Ma*