

Preface

The purpose of this book is to introduce key advances in the study of electro-chemo-mechanics (ECM). ECM is the coupling between electrical, chemical, and mechanical properties and recently has received increasing attention. New experimental techniques and greater computational processing power have given us the ability to explore in greater detail how these materials properties are linked, as well as develop the models needed to apply ECM relationships in devices. Furthermore, as many individual materials reach maxima in their optimization through traditional means (e.g., through compositional control), additional variables, such as interfacing different materials together to, for example, achieve high states of strain, are opening new dimensions to materials property control. The chapters of this book cover ECM from both experimental and computational viewpoints, drawing on the increasing importance of linking the two research approaches. We hope that the chapters of this book, written by pre-eminent researchers in the field of ECM, increases both the reader's knowledge and enthusiasm for ECM. We acknowledge Prof. Harry Tuller at MIT for his suggestion and guidance in preparing this book.

Cambridge, MA, USA
Fukuoka, Japan
Cambridge, MA, USA
Providence, RI, USA

Sean R. Bishop
Nicola H. Perry
Dario Marrocchelli
Brian W. Sheldon

Electro-Chemo-Mechanics of Solids

Bishop, S.R.; Perry, N.; Marrocchelli, D.; Sheldon, B.
(Eds.)

2017, IX, 192 p. 71 illus., 50 illus. in color., Hardcover

ISBN: 978-3-319-51405-5