Table of Contents

Chapter 1: Introduction

Chapter-3: Ni stabilized Rock-Salt structured CoO; $Co_{1-x}Ni_xO$: Tuning of e_g electrons to Development a Novel OER Catalysts

Chapter 4: Investigation of Role of Sr and Development of Superior Sr doped Hexagonal

BaCoO$_{3-\delta}$ Perovskite Bifunctional OER/ORR Catalyst in Alkaline Media

Chapter 5:   La$_{0.5}$K$_{0.5}$CoO$_{3-\delta}$ ($0 \le x \le 0.5$) Perovskite: A Novel Bifunctional OER catalyst and supercapacitive energy storage material

Chapter 6: La$_{1-x}$K$_x$FeO$_{3-\delta}$: An anion intercalative pseudo-capacitive electrode for supercapacitors application

Chapter 7: Anhydrous NiC$_2$O$_4$ Quantum dots: A superior pseudocapacitive electrode for large-scale energy storage applications in aqueous KOH and neutral Na$_2$SO$_4$ electrolyte

List of Figure

current

rate in O2 saturated 1M KOH solution.

voltage from 1 MHz to 0.1 Hz.

List of tables