

CONTENTS

FOREWORD	iii
KINETICS OF COPPER DISSOLUTION AT OXYGEN FREE AND PHOSPHORIZED ANODES	J.D. Reid and A.P. David 1
MODELING OF ANODIC DISSOLUTION AND PASSIVATION PROCESSES	Geoffrey Prentice and Yu-Chi Chang 9
CORROSION OF ZINC BY BROMINE UNDER FLOW CONDITIONS	Shih-Liang Chiu and J. Robert Selman 15
A MATHEMATICAL MODEL FOR THE PHOTOELECTROCHEMICAL ETCHING OF SEMICONDUCTORS	Mark E. Orazem 25
THE ELECTROCHEMICAL HYDROGENATION OF ORGANIC COMPOUNDS ON RANEY-TYPE METAL CATALYSTS	P.N. Pintauro, N. Phan, M.M. Baizer and K. Nobe 34
CATALYTIC AND ELECTROCATALYTIC OXIDATION OF METHANE. POLARIZATION OF SILVER ELECTRODES	Savvas Seimanides, Michael Stoukides and Albert Robbat 40
A MATHEMATICAL APPROACH FOR EVALUATING NICKEL-HYDROGEN CELLS	Harold F. Leibecki 46
SURFACE DIFFUSION LIMITED OXYGEN EXCHANGE IN ZIRCONIA ELECTROCHEMICAL CELLS	Neil L. Robertson and James N. Michaels 56
MODELING OF ELECTROCHEMICAL OSCILLATIONS RELATED TO PASSIVATION: COUPLING OF KINETICS AND DIFFUSION	Jan B. Talbot and R.A. Oriani 64
PHENOMENOLOGICAL DISCHARGE VOLTAGE MODEL FOR LEAD-ACID BATTERIES	Emile Hyman, William C. Spindler and Jon F. Fatula 78
ELECTROCHEMICAL IMPREGNATION OF POROUS NICKEL HYDROXIDE ELECTRODE	Kuo-Chuan Ho and Jacob Jorne 87
AN EMPIRICAL MODELLING APPROACH TO DESIGNING A BATTERY	H. Gu, R.L. Galyen and G. W. Brutchen 92
SIMULATION OF A RECHARGEABLE HYDROGEN-BROMINE SPE FUEL CELL	S.D. Fritts and R.F. Savinell 96
NUMERICAL ANALYSIS ON SHUNT CURRENT AND PUMPING LOSS IN A REDOX-FLOW CELL SYSTEM	K. Kanari, K. Nozaki and T. Ozawa 104
CALCULATION OF CORROSION RATE DISTRIBUTION OF A ROTATING METAL HEMISPHERE	Shih-Liang Chiu and J. Robert Selman 111
ELECTROCHEMICAL PROCESS FOR DISSOLVING PLUTONIUM DIOXIDE AND LEACHING PLUTONIUM FROM SCRAP OR WASTES	L.A. Bray, J.L. Ryan and E.J. Wheelwright 120

ELECTROLYTIC DISSOLUTION EXPERIENCE AT THE IDAHO CHEMICAL PROCESSING PLANT	Stephen J. Dukas, Douglas M. Black, Lloyd W. McClure and Gary F. Offutt	128
THE APPLICATION OF ELECTROREFINING FOR RECOVERY AND PURIFICATION OF FUEL DISCHARGED FROM THE INTEGRAL FAST REACTOR	L. Burris, R.K. Steunenberg and W.E. Miller	135
EXPERIENCES WITH ELECTROREDOX EQUIPMENT FOR THE SEPARATION OF PLUTONIUM	H. Schmieder and H. Goldacker	143
ELECTROCHEMICAL PROCESSING OF ALKALINE NITRATE AND NITRITE SOLUTIONS	D.T. Hobbs and M.A. Ebra	149
ELECTROPOLISHING APPLICATIONS IN THE NUCLEAR INDUSTRY	Richard P. Allen	156