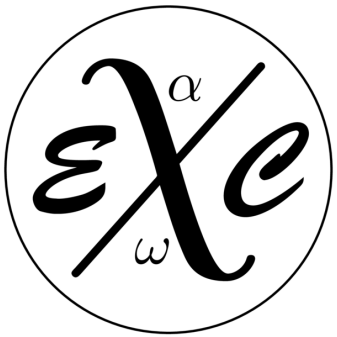
Electrochemical Impedance Spectroscopy

M. Skocic, PhD Electrochemistry and Materials



$\mathcal{E}$lectrochemistry χpertise $\mathcal{C}$orrosion

Contents

Introduction

Time domain (incomplete!):

- Polarisation: $I = f(U)$
- Potential step: ΔU, $I(t)$
- Zero Resistance Ammeter: $\int j_{gal} \cdot dt$

Frequency domain:

- Electrochemical Impedance Spectroscopy

Advantages of EIS:

- Measurement in small perturbations (approximately linear)
- Different processes have different time constants
- Large frequency range from μHz to GHz

References I