websites of note

by Zoltan Nagy

Lecture Notes in Electrochemistry/Electrochemical Engineering

Detailed course material from MIT, including**:** equivalent circuit models, thermodynamics, reaction kinetics, transport phenomena, electrostatics, electrokinetics, porous media, and phase transformations.

- M. Bazant, MIT
- http://ocw.mit.edu/courses/chemical-engineering/10-626-electrochemical-energy-systems-spring-2011/lecture-notes/

Electroforming — a Unique Metal Fabrication Process

Electroforming plays an important role in our daily lives. We have contact with its results many times each day and it greatly enhances our lifestyle in a variety of ways. In addition, it is an extremely versatile process. For instance, it is used to produce micro components for the medical and electronics industries and huge components for the aircraft and aerospace industries. For many applications it has become indispensable.

- R Parkinson, Nickel Development Institute
- http://www.nickelinstitute.org/~/Media/Files/TechnicalLiterature/Electroforming_AUniqueMetalFabricationProcess_10084_.pdf

Electrochemical Machining of Metal Plates

Technical basis of electrochemical machining. Experimental basis of electrochemical machining. Theoretical basis of current distribution. Experimental tests and results (stationary cathode, advancing cathode, rotating cathode). Interpretations of results. Implementation of the process.

- J. F. Cooper and M .C. Evans, Lawrence Livermore National Laboratory
- http://www.llnl.gov/tid/lof/documents/pdf/317378.pdf

Electropolishing of Stainless Steels

Electropolishing is a chemical surface finishing technique, by which metal is electrolytically removed, ion by ion, from the surface of a metal object. The primary objective is to minimize microroughness, thus dramatically reducing the risk of dirt or product residues adhering and improving the cleanability of surfaces. Electropolishing is also used for deburring, brightening, and passivating. The process exposes an undisturbed, metallurgically clean surface, eliminating thermal stress and surface roughening, and improving the corrosion resistance.

- Kosmač, Euro Inox
- http://www.euro-inox.org/pdf/map/Electropolishing_EN.pdf

About the Author

Zoltan Nagy is a semi-retired electrochemist. After 15 years in a variety of electrochemical industrial research, he spent 30 years at Argonne National Laboratory carrying out research on electrode kinetics and surface electrochemistry. Presently he is at the Chemistry Department of the University of North Carolina at Chapel Hill. He welcomes suggestions for entries; send them to nagyz@email.unc.edu.