

Transactions of the Institute of Metal Finishing

2012, Volume 90

SUBJECT INDEX

Abrasive wear testing	252	Conference report – Applied research projects in surface engineering and pc sectors	172	Energy dispersive X-ray spectroscopy	86, 92, 105, 129, 197, 203, 209, 274, 316
Additives	44, 69, 98, 143, 149, 246, 267, 290, 324	Conference report – energy efficiency, surface finishing	8	Energy efficiency toolkit, surface finishing processes	172
Adhesion testing, Ni-Co high speed plating, Ti substrate	15	CoNiMnP-BaFe ₁₂ O ₁₉ nanocomposite electrodeposited coatings, chloride/sulphate bath, magnetic properties	92	Environmental scanning electron microscopy	203
Adhesion testing, pulse plated Ni, AA6061 substrate	44	Conversion coating, vanadate based, Mg alloy AZ91D, electroless Ni-P	129	Field emission gun scanning electron microscopy	9, 15, 311
Adhesion testing, scribe grid test, electroless Ni-P plated AZ91D	209	Copper-tin alloy	38	Fourier transform IR spectroscopy	203
Mg alloy		electrodeposition, chloride-pyrophosphate bath, response surface methodology evaluation		Friction coefficient, nanocrystalline Co-P electrodeposit, pulsed current	252
Alloy plating	15, 20, 38, 92, 98, 137, 197, 237, 252, 305, 316	Corrosion resistance	20, 44, 79, 86, 105, 125, 129, 156, 203, 209, 215, 237, 252, 259, 290, 324, 330	Friction coefficient, nanocrystalline Ni electrodeposit	143
Aluminium anodising, H ₂ SO ₄ bath, low voltage, additives, Ce nitrate, tartaric acid	290	Current distribution, tertiary, rotating electrodes, simulation study	120	Glow discharge optical emission spectroscopy	305
Aluminium anodising, MgSO ₄ bath, Zr silicate additive, corrosion resistance, hardness	215	Cyclic voltammetry	149, 246, 267, 311	Gold electrodeposition, rinse water, recovery, electrodialysis	161
Anodic oxides, aluminium, low voltage anodising, sulphuric acid, anodising potential, additives, cerium nitrate, tartaric acid	290	Density functional theory computations	30	Gold electrodeposits, soft coatings, pulsed current, additives, thallium ions, grain size	246
Anodic polarisation	137	Editorial	1, 57, 225, 281	Gold-cobalt alloy	305
Anodising, low voltage, additives, corrosion resistance	290	Electrochemical impedance (Nyquist diagrams) spectroscopy	69, 79, 129, 137, 149, 156, 203, 215, 259, 274, 324	electrodeposition, acidic complex cyanide-sulphate bath, deposit composition, structure	
Atomic absorption spectroscopy	38, 161	Electrochemical noise analysis, anodising	290	Gold-yttria composite coatings, HAuCl ₄ .3H ₂ O bath, surface enhanced Raman spectroscopy, film growth	30
Atomic force microscopy	9, 149, 188, 215, 237, 246, 252, 330	Electrodeposit nucleation and growth mechanism, Co-Cu deposition	98	Gravimetric analysis	330
Barrier paint coating, peelable, flexibility	118	Electrodeposited Ni-SiC composite coatings, pulsed current, ultrasound	274	Hall-Petch relationship	143
Bode plots	79, 137	Electrodeposition	15, 20, 30, 38, 44, 64, 69, 86, 92, 98, 105, 125, 137, 143, 149, 237, 246, 259, 267, 274, 298, 305, 311, 316, 324	Hardness	20, 44, 105, 143, 215, 252, 259, 267, 274, 316
Book review	61, 62, 178, 229	Electrodialysis, gold plating rinse water, recovery	161	IMF Gold Medal Lecture, electrode kinetics, Helmholtz double layer	69
Chemometrics, experimental design, multivariate analysis, hard Cr, pulsed current deposition	259	Electroless deposition	105, 129, 197, 209	Infrared spectroscopy	149
Chromium electrodeposition, functional coatings, reverse pulsed current, chemometrics	259	Electroless nickel-phosphorus deposition, direct, AZ91D Mg substrate, pretreatments, K ₄ P ₂ O ₇ /NH ₄ HF ₂	209	Institute AGM report	5
Chromium electrodeposition, trivalent sulphate bath, Fe ion content, morphology, structure, properties	86	Electroless Ni-P coating, AZ91D Mg alloy substrate, vanadate pretreatment, corrosion protection	129	Ionic liquid deposition, tantalum, [BMT][TFSA] electrolyte, pulsed current, pulse parameters, morphology	298
Cobalt-nickel electrodeposited alloy, sulphate bath, citrate additive, cyclic voltammetry, chronoamperometry	98	Electropolishing, enhanced oxidation-dissolution theory, stainless steel, Nitinol	188	Ionic liquids electrolytic processing, IONMET, electropolishing, aerospace alloys	172
Cobalt-phosphorus alloy electrodeposition, nanocrystalline, pulsed current, hard Cr replacement	252			Ionic liquids, choline chloride, anodic etching/polishing, superalloy aerospace castings, scale	9
Cobalt-tungsten-alumina composite electrodeposition, Al ₂ O ₃ nanoparticles, structure, sliding wear	316			Langmuir isotherm, Ni-P-kaolin electroless composite deposition	105
Composite coatings	30, 92, 105, 274, 316			Laser profilometry	246
Conductivity, plating electrolytes, tin stannate, activation energy	64			Letter	8
Conference report – 5 th European pulse plating seminar	114			Magnetron sputter coating, stainless steel 304L, AZ31B Mg alloy substrate, corrosion resistance	125
Conference report – 5 th International Thermal Spray Meeting	284			Metal finishing sector, global output	285
				National metal finishing sectors, global comparisons, structure, economics	179
				National metal finishing sectors, global comparisons, technology/operational variations	232
				Near infra-red Raman spectroscopy	311

New Materials Degradation Centre, Loughborough University	177	Pulse plating	20, 44, 114, 143, 237, 246, 252, 259, 267, 274, 316	Susonence project, ultrasonically enhanced surface modification	63, 172
Nickel electrodeposition, citrate buffered bath, sulphonic acids, deposit structure, corrosion resistance	324	Response surface methodology	38	Tafel curves	86, 149, 215
Nickel electrodeposition, nanocrystalline, pulsed current, additive, cis-butene-1,4 diol, grain size	267	Review – pulse plating, potential applications	20	Tantalum electrodeposition, ionic liquid, [BMTJTFSA], pulsed current, pulse parameters, morphology	298
Nickel electrodeposition, nanocrystalline, Watts bath, pulsed current, AA6061 substrate, grain size, coefficient of friction, hardness, Young's modulus	143	Saccharin additive, Ni electrodeposition, grain size	44, 143	Tertiary current distribution, rotating electrodes, simulation study	120
Nickel electrodeposition, Watts bath, pulsed current, AA6061 substrate, grain size, microstructure, space applications	44	Scanning electron microscopy	9, 15, 44, 69, 79, 86, 92, 105, 125, 129, 143, 149, 156, 197, 203, 209, 215, 237, 246, 252, 259, 267, 274, 290, 298, 305, 311, 316, 324	Thermal cycling	44
Nickel electrodeposits, Watts bath, mild steel, porosity measurement	156	Silane coating, sol gel, Ni intermediate electrodeposit, Watts bath, sintered NdFeB permanent magnet substrates	203	Thermal extraction hydrogen analysis	305
Nickel recovery, electrowinning, electrocoagulation, acid extraction, ionic liquids	172	Silane films, sol gels, AZ91D Mg alloy, corrosion protection, nitrate ions	79	Tin-zinc-nickel ternary alloy chemical deposition, Li ion battery, anode	197
Nickel-cobalt alloy electrodeposition, Ti alloy substrate, direct high speed plating, turbulent flow	15	Silver electrodeposition, electrode kinetics, levelling, brightening	69	Transmission electron microscopy	330
Nickel-gold solderable finishes, pcb assemblies	172	Spectrophotometry	259	Ultrasonic cleaning, cavitation intensity, acidic solutions	52
Nickel-phosphorus-kaolin electroless deposition, composite coatings, corrosion resistance, heat treatment	105	Structure	44, 86, 92, 105, 129, 143, 237, 237, 246, 252, 259, 267, 274, 305, 316, 324	Ultrasonically enabled immersion/electroless deposition	172
Obituary	228	Surface enhanced Raman spectroscopy	30	Ultrasonics	52, 63, 172, 274
Optical profilometry	316	Surface morphology	44, 69, 79, 86, 92, 105, 125, 129, 143, 149, 156, 197, 203, 209, 215, 237, 246, 252, 259, 267, 274, 305, 311, 316, 324	Wear resistance	105, 252, 274, 316
Paint coatings	118			Wettability, hydrophobicity, hard Cr, pulse plated coatings	259
Phosphate coatings, amorphous, carbon steel, pH, temperature, passivation	330			X-ray diffraction	15, 44, 86, 92, 105, 125, 129, 143, 149, 197, 209, 215, 237, 246, 252, 259, 267, 274, 305, 311, 316, 324
Polyaniline electrochemical synthesis, TiO ₂ nanotubes, morphology, characterisation	311			X-ray fluorescence spectroscopy	86, 252, 259, 298, 305, 330
Potentiodynamic polarisation	79, 125, 129, 149, 203, 237, 252, 274, 330			X-ray microanalysis	305
Power consumption, tin stannate baths, conductivity	64			X-ray photoelectron spectroscopy	9, 86, 129, 137, 237, 330
Pulse plating review, electronics, semiconductors, photovoltaic, corrosion resistance, tribology, catalysis	20			Young's modulus	143
				Zinc electrodeposition, sulphate bath, 1,2-diaminopropane	149
				Zinc electrodeposits, oxide films, corrosion resistance	137
				Zinc-(Ni,Fe,Co) alloy electrodeposits, oxide films, corrosion resistance	137
				Zinc, zinc-nickel alloys, pulsed current electrodeposition, structure, corrosion resistance, grain size	237