

1. Record Nr.	UNINA9910592994303321
Autore	Ma Guozheng
Titolo	Micro process and quality control of plasma spraying // Guozheng Ma, Shuying Chen and Haidou Wang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore Pte Ltd., , [2022] ©2022
ISBN	981-19-2742-1
Descrizione fisica	1 online resource (679 pages)
Collana	Springer series in advanced manufacturing
Disciplina	671.734
Soggetti	Plasma spraying
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- 503740_1_En_BookFrontmatter_OnlinePDF -- Preface -- Contents -- 503740_1_En_1_Chapter_OnlinePDF -- 1 Introduction -- 1.1 Technical Principle of Plasma Spraying -- 1.1.1 Plasma -- 1.1.2 Plasma Arc -- 1.1.3 Basic Process of Plasma Spraying -- 1.1.4 Working Gas for Plasma Spraying -- 1.2 Development and Characteristics of Plasma Spraying -- 1.2.1 Development History of Plasma Spraying -- 1.2.2 Technical Characteristics of Plasma Spraying -- 1.3 Typical Plasma Spraying Technology -- 1.3.1 Conventional Plasma Spraying (PS) -- 1.3.2 Supersonic Plasma Spraying (SPS) -- 1.3.3 Low Pressure Plasma Spraying (LPPS) -- 1.3.4 Water-stabilized Plasma Spraying (WSPS) -- 1.3.5 Tricathode Plasma Spraying -- 1.3.6 Suspension Plasma Spraying -- 1.3.7 Reactive Plasma Spraying -- 1.4 Developing Direction of Plasma Spraying Technology -- 1.4.1 Development Prospects of Basic Theory -- 1.4.2 Trends for Hardware Development -- 1.4.3 Prospects of Spraying Materials -- References -- 503740_1_En_2_Chapter_OnlinePDF -- 2 Microcosmic Interaction Between Plasma Jet and Spraying Particles -- 2.1 Basic Characteristics of Plasma Jet -- 2.1.1 Simulation and Experiment of Gas Ionization Characteristics in Spray Gun -- 2.1.2 Mathematical Model of Flow Field of Plasma Jet -- 2.1.3 Temperature Field Distribution Characteristics of Plasma Jet -- 2.1.4 Velocity Field Distribution Characteristics of Plasma Jet -- 2.1.5 Composition Characteristics of Plasma Jet -- 2.2 Heat Transfer in Jet and Formation of Spraying Droplets -- 2.2.1

Temperature Monitoring of Particles -- 2.2.2 Heating-up and Evaporation of Particles -- 2.2.3 Effect of Process Parameters on Particle Temperature -- 2.3 Momentum Transfer and Particle Acceleration in Jet -- 2.3.1 Particle Velocity Monitoring -- 2.3.2 Force Analysis of Particles -- 2.3.3 Effect of Process Parameters on Particle Velocity.

2.4 Mass Transfer in Jet and Physical and Chemical Reaction of In-Flight Particles -- 2.4.1 Particle Quenching Collector -- 2.4.2 Physical Refinement of Particles -- 2.4.3 Reaction of Particles with Ambient Air -- 2.4.4 Self-reaction of Particles -- References --

503740_1_En_3_Chapter_OnlinePDF -- 3 Impact Spread Behavior of Flying Droplets and Properties of Splats -- 3.1 General Characteristics of Droplet Impact Process -- 3.1.1 Deposition Characteristic Parameters of Droplet -- 3.1.2 Mechanisms of Droplet Spreading -- 3.1.3 Factors Influencing the Droplet Spreading Process -- 3.1.4 Monitoring the Droplet Spreading Process -- 3.1.5 Characteristics of Droplet Grain Growth -- 3.2 Numerical Simulation of Droplet Impact Behavior -- 3.2.1 Simulation of Droplet Impact and Spreading Process -- 3.2.2 Boundaries and Conditions for Droplet Impact Simulation -- 3.2.3 Physical Model of Droplet Impact Process -- 3.2.4 Influence of Viscosity Coefficient on Droplet Spreading Process -- 3.3 Capture of Splats and Fundamentals of Image Analyses -- 3.3.1 Acquisition Device of a Single Splat -- 3.3.2 Image Processing Functions -- 3.3.3 The Process of Extracting Splats -- 3.3.4 Splat Morphological Parameters -- 3.4 Solidification Morphology of Splats -- 3.4.1 Typical Morphology of Splats -- 3.4.2 Effect of Typical Parameters on the Appearance of Splats -- 3.4.3 Statistical Characteristics of Splat Morphology -- 3.4.4 Statistical Signation of Splat Solidification Types -- 3.5 Evaluating the Bonding Strength of Splats -- 3.5.1 Scratch Measurement Mechanism -- 3.5.2 Morphology of Typical Splats -- 3.5.3 Multiple Physical Signals During the Debonding of Splats -- 3.5.4 Debonding Process and Mechanism of Splats -- 3.5.5 Characterization of Bonding Strength of Splats -- 3.6 Evaluating the Residual Stress of Splats -- 3.6.1 Principle of the FIB-DIC Residual Stress Test.

3.6.2 Principle of the DIC Non-contact Strain Test -- 3.6.3 Calibration of Stress Release Coefficient -- 3.6.4 Residual Stress Measurement of Typical Particles -- 3.6.5 Error Analysis of Residual Stress Testing Process -- 3.6.6 Formation Mechanism of Droplet Residual Stress -- References -- 503740_1_En_4_Chapter_OnlinePDF -- 4

Characterization of Primary Defects and Quality Evaluation of Coatings -- 4.1 Microscopic Process of Coating Growth -- 4.1.1 Space Distribution of Particles -- 4.1.2 Wetting Mechanism of First-layered Flattening Particles -- 4.1.3 Wetting Mechanism of Follow-up Flattening Particles -- 4.1.4 Pore Forming Mechanism in Coating -- 4.2 Characterization Methods of Coating Porosity -- 4.2.1 Image Analysis Method -- 4.2.2 Three-dimensional Computed Tomography Method -- 4.2.3 Weighing Method -- 4.2.4 Drainage Method -- 4.2.5 Electrolytic Coloring -- 4.2.6 Air Permeability Comparison Method -- 4.2.7 Small-Angle Neutron Scattering Method -- 4.2.8 Microwave Method -- 4.2.9 Ultrasonic Method -- 4.3 Quantitative Characterization of Coating Bonding Strength -- 4.3.1 Traditional Test Method -- 4.3.2 Bonding Strength Measurement with the Static Load Indentation Method and Acoustic Emission Technology -- 4.3.3 Bonding Strength Measurement Impact Indentation Method and Acoustic Emission Technology -- 4.3.4 Other Testing Methods -- 4.4 Testing Method for Residual Stress of Coatings -- 4.4.1 Nondestructive Testing -- 4.4.2 Mechanical Method -- 4.4.3

Nanoindentation Method -- 4.4.4 Focused Ion Beam-Electron Beam Method -- 4.5 Other Performance Tests for Coatings -- 4.5.1 Microhardness Test -- 4.5.2 Elastic Modulus -- 4.5.3 Fracture Toughness -- References -- 503740_1_En_5_Chapter_OnlinePDF -- 5 Coating Quality Control Based on Traditional Process Measures -- 5.1 Pretreatment Process -- 5.1.1 Sand Blasting -- 5.1.2 Dry Ice-Assisted Deposition. 5.1.3 Mechanical Roughing -- 5.1.4 Laser Texturing -- 5.2 Traditional Optimization of Spraying Process Parameters -- 5.2.1 Typical Adjustable Spraying Parameters -- 5.2.2 Orthogonal Experiment Method -- 5.2.3 Response Surface Method -- 5.2.4 Neural Network Method -- 5.2.5 Other Methods -- 5.3 Afterprocessing-Heat Treatments -- 5.3.1 Laser Remelting -- 5.3.2 Induction Remelting -- 5.3.3 Electron Beam Remelting -- 5.3.4 Argon Arc Remelting -- 5.3.5 Homogeneous Heat Treatment -- 5.3.6 Hot Isostatic Pressing -- 5.3.7 Flame Remelting -- 5.4 Afterprocessing-Other Methods -- 5.4.1 Hole Sealing Treatment -- 5.4.2 Ultrasonic Shock Treatment -- 5.4.3 Steam Treatment -- 5.4.4 Electro Polarization Treatment Process -- References -- 503740_1_En_6_Chapter_OnlinePDF -- 6 Coating Quality Control Based on State Optimization of Droplets and Splats -- 6.1 Microstructure and Deoxidation Reaction Control of BaTiO₃ Coating -- 6.1.1 Experimental Process -- 6.1.2 Effect of Spraying Atmosphere on Microstructure and Mechanical Properties of BaTiO₃ Coating -- 6.1.3 Defect Formation Mechanisms of BaTiO₃ Coatings in Different Atmospheric Conditions -- 6.1.4 Dielectric Properties of BaTiO₃ Coating and Its Oxygen Loss and Reduction Mechanism -- 6.2 Micro Formation Mechanism and Microstructure Control of WC-10Co4Cr Coating -- 6.2.1 Experimental Process -- 6.2.2 Behavior and Interaction Mechanisms of WC Particles During Flighting, Spreading and Solidification -- 6.2.3 Evolution of Original Structural Characteristics of WC Coating -- 6.2.4 Evolution of WC Coating Microstructure Characteristics -- 6.3 Quality Optimization of the Fe-Based Amorphous Coatings -- 6.3.1 Test Methods and Equipment -- 6.3.2 Droplet Flight Characteristics of Fe-Based Amorphous Alloy Coatings -- 6.3.3 Solidification Types of Flat Particles and Its Mechanisms. 6.3.4 Phase Characteristics of Coating and Determination of Amorphous Phase Content -- 6.3.5 Micromorphology and Mechanical Properties of Fe-Based Amorphous Alloy Coatings -- 6.4 Quality Optimization of the Thermal Barrier Coatings -- 6.4.1 Condition Monitoring of In-flight Particles -- 6.4.2 Analysis of Physicochemical Properties and Spreading Morphology of Droplets -- 6.4.3 Microstructure Characteristics of Coatings -- 6.4.4 Microcosmic Defects and Properties -- 6.4.5 Thermal Insulation Properties -- 6.4.6 High-Temperature Oxidation Resistance -- 6.4.7 Thermal Shock Resistance -- References -- 503740_1_En_7_Chapter_OnlinePDF -- 7 Typical Plasma Sprayed Coatings and Applications -- 7.1 Typical Wear Resistance Coatings and Applications -- 7.1.1 Tribological Properties of Typical Amorphous Coatings -- 7.1.2 Tribological Properties of Typical Alloy Coatings -- 7.1.3 Tribological Properties of Oxide Ceramic Coatings -- 7.1.4 Tribological Properties of Carbide Ceramic Coatings -- 7.2 Typical Thermal Barrier Coatings and Applications -- 7.2.1 Novel Thermal Barrier Coatings -- 7.2.2 Typical Structures of Plasma Sprayed Thermal Barrier Coatings -- 7.2.3 Properties of Thermal Barrier Coatings -- 7.3 Typical Functional Coatings and Applications -- 7.3.1 Stealth Absorbent Coating -- 7.3.2 Biomedical Coating -- 7.3.3 Solid Oxide Fuel Cell Coating -- 7.3.4 Bionic Superhydrophobic Coating --

References.

2. Record Nr.	UNINA9910711493003321
Autore	Horton Rebecca
Titolo	Great Lakes avian radar technical report Lake Erie shoreline Erie County, Ohio and Erie County, Pennsylvania // authors: Rebecca Horton [and five others] ; U.S. Fish & Wildlife Service, Region 3
Pubbl/distr/stampa	[Bloomington, Minn.] : , : U.S. Fish and Wildlife Service, Region 3, , 2016
Descrizione fisica	1 online resource (vi, 77 pages) : color illustrations, color maps
Collana	Biological technical publication ; ; BTP-R 3012-2016
Soggetti	Birds - Ohio - Erie County Birds - Pennsylvania - Erie County Radar in ornithology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Spring 2012."
Nota di bibliografia	Includes bibliographical references (pages 39-42).