

5th Asian Thermal Spray Conference (ATSC2012) Program

Nov.26

[Main Convention Hall]

9:30-9:45		Opening Ceremony	M.Fukumoto S.Kuroda
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Chair: S. Kuroda

Plenary	Paper No.	Title	Speaker
9:45-10:30 [Plenary]	PI-1	Fukushima Daiichi Nuclear Power Plant Accident - before and after	T.Shoji
10:30-11:15 [Plenary]	PI-2	Application Integration of Thermal Spray Coatings: Historical Perspective and Future Consideration	S.Sampath

11:15-11:30

(Break)

[Conference Room 101]

Chair: S.Hirose

Standardization	Paper No.	Title	Speaker
11:30-11:50	O-1	Elastic Modulus Measurement of a Thermal Barrier Coating Based on Composite Beam Theory: Accuracy and Sensitivity to Experimental Errors	H.Waki
11:50-12:10	O-2	Current Activities for Standardization on Test Method to Evaluate Adhesion Strength of Thermal Spray Coatings in Japan	Y.Yamazaki
12:10-12:30	O-3	Determination of Thermal Conductivity for Thermal Barrier Coatings	S.Takahashi

12:30-13:15

(Lunch break)

Chair: L.T.Quy

	Paper No.	Title	Speaker
13:15-13:40 [Invited]	I-1	Emerging Processes in Plasma Spraying in the Context of Sustainable Manufacturing	A.Vardelle
TBC1			
13:40-14:00	O-4	Development of TBCs for Advanced-Ultra Supercritical Steam Turbine System	K.Wada
14:00-14:20	O-5	Enhancement the Corrosion Resistance of TBCs via Sol-gel Silica Nanoparticles	M.F. Morks
14:20-14:40	O-6	The Effect of Process Stress Evolution on The Microstructure of Plasma Sprayed Zirconia Coatings	Y.Okajima
14:40-15:00	O-7	Thermo-Mechanical Properties of Yttrium Stabilized Zirconia and Lanthanide Doped Zirconia Films Prepared by EBPVD and Plasma Spray Method	Y.S.Oh

15:00-15:10

(Break)

Chair: Y.Yamazaki

TBC2	Paper No.	Title	Speaker
15:10-15:30	O-8	The Effect of Porosity on Thermal Conductivity of Plasma-Sprayed Thermal Barrier Coatings	E.Byon
15:30-15:50	O-9	Effect of TGO Thickness on the Lamellar Interface Cracking in Plasma-Sprayed 8YSZ	H.Dong
15:50-16:10	O-14	A Preliminary Study of Oxidation of Bond Coats With and Without Y Addition	T.Izumi

16:10-16:30

(Break) Poster session

Chair: C.J.Li

Cold spray1	Paper No.	Title	Speaker
16:30-16:50	O-42	Synergistic Effects of High Temperature and Impact Compaction on the Electron Transport Property of Vacuum Cold-Sprayed Nano-TiO ₂ Film	G.J.Yang
16:50-17:10	O-43	Designing of Fe-C-Cr Alloy Powders for Cold Spraying	Y.Koga
17:10-17:30	O-44	Accuracy of Estimating Stagnant Gas Temperature of Cold Spray by Measuring Metal Temperature of Outer Surface of the Gun	H.Morita

17:30-17:50	O-45	Mass Production of Monolithic Zinc-Aluminum Sputtering Targets Using High Volume Cold Spray	N.Dennehy
17:50-18:10	O-46	Cold Spray Deposition on The Thermoplastic and Thermosetting Polymer Substrates: A Comparative Study	A.Ganesan

[Conference Room 102]

Chair: K.A.Khor

Corrosion	Paper No.	Title	Speaker
11:30-11:50	O-17	Hot Corrosion Behavior of Gas Tunnel Type Plasma Sprayed Functionally Graded Yes/La ₂ Zr ₂ O ₇ Composite Coatings In Molten Na ₂ SO ₄ +V ₂ O ₅ Salt Environment	A.Kobayashi
11:50-12:10	O-16	Application of Thermal Spraying to Bridges For Corrosion Prevention	T.Mende
12:10-12:30	O-15	Development of Thermal Sprayed High Corrosion Resistance Coating of Stainless Steel Through Si and B Addition	Z.Zeng

12:30-13:15

(Lunch break)

Chair: Z.Zeng, Y.Ando

	Paper No.	Title	Speaker
13:15-13:40 [Invited]	I-3	Thermal Spray Activities for Green Energy in Korea	H.J.Kim
Droplet			
13:40-14:00	O-18	Flattening Behavior of Thermal Sprayed Particles Through Controlling Substrate Temperature	K.Yang
14:00-14:20	O-19	Numerical Studies of Droplet Spreading Process in Thermal Spray Coatings	A.T.T. Tran
14:20-14:40	O-20	Influence of Particle Oxidation and Size Distribution on Deposition Efficiency of Cu-Based Composites	S.Kikuchi
14:40-15:00	O-21	Microstructure and Bond Strength of Flattened Millimeter-Size Nickel Droplet to Stainless Steel Substrate	H.Li

15:00-15:10

(Break)

Chair: T.Yasui

New process1	Paper No.	Title	Speaker
15:10-15:30	O-22	Theoretical Considerations, Film and Optical Properties of Film by Aerosol Deposition for Ir Optical Filters	S.Hirose
15:30-15:50	O-23	Relationship Between Impact Velocity of Al ₂ O ₃ Particles and Deposition Efficiency in Aerosol Deposition Method	K.Naoe
15:50-16:10	O-24	Structural, Mechanical and Erosion Properties of Yttrium Oxide Coatings by Axial Suspension Plasma Spraying For Electronics Applications	J.Kitamura

16:10-16:30

(Break) Poster session

Chair: M.F.Morks

New process2	Paper No.	Title	Speaker
16:30-16:50	O-25	Structural Modifications on Material Surfaces by Thermal Nanoparticle Spraying and Microlines Patterning	S.Kirihara
16:50-17:10	O-26	Creation of Fine Alumina Layers by Using Thermal Nanoparticles Spraying	S.Tasaki
17:10-17:30	O-27	Application of Compound Flow Analysis To LT-HVAF Spray System Nozzle Flow	M.Okamoto
17:30-17:50	O-28	Aluminum Nitride Coating Formed by Reactive Plasma Spraying with Controlled Ambient	M.Shahien
17:50-18:10	O-29	Artificial Lotus Surface with Super-Hydrophobicity Through Surface-Molten Particle Deposition by Flame Spraying Assisted with Modification	B.Chen

[Multi-Purpose Hall]

Chair: H.Katanoda

Student session	Paper No.	Title	Speaker
11:30-11:37	S-1	Superior Mechanical Properties of Warm Spray WC-Co Coatings with Post-Heat Treatments	Y.Moriya
11:37-11:44	S-2	Effect of Thermally Softened Substrate on the Deposition Mechanism of Cold Sprayed Copper Particles	S.Yin
11:44-11:51	S-3	Influence of Residual Stress on Mechanical Property of Cold Spray Coating	Y.Watanabe
11:51-11:58	S-4	Effect of Spray Angle on Adhesion Strength of Aluminum Coating and Particle Impact Behavior on Glass And Ceramic Substrate in Cold Spray	T.Kubo
11:58-12:05	S-5	Attempt to Improve Characteristics of Cold Sprayed Metallic Coatings by Ultrasonic Impact Treatment	K.Kondo
12:05-12:12	S-6	Investigation of Surface Activation Bonding for Elucidation of Deposition Mechanism of Cold Spraying	K.Hashimoto
12:12-12:19	S-7	Fundamental Study on Development of Cold Sprayed Joints	L.Xu
12:19-12:26	S-8	Effect of Vacuum Kinetic Sprayed TiO ₂ Blocking Layer on the Performance of Dye-Sensitized Solar Cell	J.Heo

12:26-13:15

(Lunch break)

Chair: K. Sakaki

Student session	Paper No.	Title	Speaker
13:15-13:22	S-9	Micro-Structural Evaluation of the Particle Interface in the Cold-Sprayed Copper Deposit	Y. Watanabe

13:22-13:29	S-10	Structure and Magnetic Properties of Nd-Fe Based Films Deposited with Supersonic Free-Jet PVD	H.Kobayashi
13:29-13:36	S-11	Zinc Oxide Film Deposition by Atmospheric Thermal Plasma CVD Using Vortex Ar Plasma Jet	S.Y.Chen
13:36-13:43	S-12	Phases and microstructures of solution precursor plasma sprayed cobalt ferrite splats	N.Sanpo
13:43-13:50	S-13	Effects of Cathode Shape on Plasma Jet in Thermal Spraying	D.Q.Zhang
13:50-13:57	S-14	Deposition of High Hardness Coating by Using Low Power Atmospheric Pressure Microwave Plasma Spray	A.Redza
13:57-14:04	S-15	Effect of Nozzle Types on Coating Performance by Low Temperature - High Velocity Air Fuel Spray System	K.Miura

14:04-14:11

(Break)

Chair: V.Luzin

Student session	Paper No.	Title	Speaker
14:11-14:18	S-16	Thermally Sprayed SiC Coatings for Offshore Wind Bearing Applications	F. Mubarak
14:18-14:25	S-17	Improvement of Mechanical Properties of WC-Cermet Coatings Prepared by High Velocity Air Fuel Spraying (Influence of Spray Gun Nozzle Geometry And Combustion Chamber on The Mechanical Properties of Coatings)	H.Miyajima
14:25-14:32	S-18	Effect of Crystal Structures on Plasma Ion Nitriding and Mechanical Behaviors of HVOF Sprayed Stainless Steel Coatings	G.Park
14:32-14:39	S-19	Characterization and Antibacterial Activity of Zn and Ag Co-Incorporated Calcium Silicate Coating by Plasma Spraying	K.Li
14:39-14:46	S-20	Immobilization of Hyaluronic Acid on Plasma-Sprayed Porous Titanium Coating for Improving	H.Ao

14:46-15:05

(Break)

Chair: J.Cizek

Student session	Paper No.	Title	Speaker
15:05-15:12	S-21	Optimisation of Plasma Spray Process Parameters for Hydroxyapatite Coatings with respect to Heat Treated Coatings Properties	M.F.Hasan
15:12-15:19	S-22	Influence of Specimen Twisting on Young's Modulus of Thermally Barrier Coating Measured by Four Point Bending Test	R.Hamamoto
15:19-15:26	S-23	Effect of Polishing Conditions on Porosity of Thermally Sprayed Ceramic Coating Measured by Image Analysis	K.Haba
15:26-15:33	S-24	Fabrication of Ni-YSZ Functional Gradient Coatings by Vacuum Plasma Spraying	H.J.Park
15:33-15:40	S-25	In-Situ Observation of Failure Behavior for Sprayed Thermal Barrier Coating under Mechanical Bending Loadings	T.Nagaya
15:40-15:47	S-26	Microstructural Features and Oxidation Behavior of MCrAlY Coatings	C.H.Park
15:47-15:54	S-27	Preparation of Spraying Powder of MWCNT-PFA Resin Matrix Composite and Its Application to Powder Flame Spraying	Y.Maeda
15:54-16:01	S-28	Fabrication of Photocatalytic Coatings by Sol Thermal Spray	S.Nishihara

16:01-16:10

(Break)

Poster presentation			Speaker
16:10-17:00		Poster presentation	All students

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[Conference Room 101]

Chair: S.Kirihara

Biomaterials	Paper No.	Title	Speaker
9:00-9:25 [Invited]	I-4	In-Flight Temperature and Velocity of Powder Particles of Plasma Sprayed Hydroxyapatite	K.A.Khor
9:25-9:45	O-30	Addition of Hydroxyapatite Enhances Adherence of Escherichia coli Bacteria on Flame Sprayed Photocatalytic Titania-Based Coatings	Y.Liu
9:45-10:05	O-31	Investigation of Hydroxyapatite Spraying on AZ1 Magnesium Alloy for Biomaterial Application	M. Hyland

Chair: G.Sundararajan

Cold spray2	Paper No.	Title	Speaker
10:05-10:30 [Invited]	I-5	Material Science of Cold Spray Coatings on Multiple Scale Levels	V.Luzin
10:30-10:50	O-32	Use of Mini Tensile Test Specimen in Determining Mechanical Properties of Warm Spray Coatings of Titanium and Its Alloys	R.M. Molak

10:50-11:00

(Break)

Chair: H.Li

Cold spray2 (Contd.)	Paper No.	Title	Speaker
11:00-11:20	O-33	Relating High-Cycle Fatigue Properties and Fractographic Features of Plasma, Warm and Cold Sprayed Materials	J.Cizek
11:20-11:40	O-34	Significance of Particle Impact Conditions on Bonding, Microstructural Parameters and Mechanical Properties in Kinetic Sprayed Tantalum	G.Bae
11:40-12:00	O-35	Formation of Intermetallic Reinforced Aluminium Composites by Annealing Treatment of Cold Sprayed Precursor	H.T.Wang

12:00-13:00

(Lunch break)

Chair: G.J.Yang

Cold spray3	Paper No.	Title	Speaker
13:00-13:20	O-36	Potential of Kinetiks ® Series and Its Application Example	K.Onizawa
13:20-13:40	O-37	Microstructure and Properties of Titanium Nitride Films Fabricated Via Vacuum Kinetic Spray	F.Cao
13:40-14:00	O-38	The Influence of Heat Treatment on The Microstructure and Mechanical Properties of Cold Sprayed Coatings	S.Bo
14:00-14:20	O-39	Effect of Substrate Elastic Modulus on Microstructure and Bonding of Al ₂ O ₃ Coatings Deposited by Vacuum Cold Spray	G.J. Yang
14:20-14:40	O-40	Bonding of Cold Sprayed Aluminum on Glass - A Study with Transmission Electron Microscopy	M.Son
14:40-15:00	O-41	A Comparison Between One- and Two-Dimension Models for the In-Flight Particle Characteristics in Cold Spraying Process	R. Huang

15:00-15:20

(Break)

Chair: H.Waki,

TBC3	Paper No.	Title	Speaker
15:20-15:45 [Invited]	I-2	Evolution of Lamellar Interface Cracks During Isothermal Cyclic Test of Plasma-Sprayed 8YSZ Coating With a Columnar Structured YSZ Interlayer	C.J.Li
15:45-16:05	O-11	Hybrid Plasma Sprayed Thermal Barrier Coatings Using Powder and Solution Precursor Feedstock	S.V. Joshi
16:05-16:25	O-13	Delamination Fatigue Strength Evaluation of Thermal Sprayed Coating by Torsion Pin-Test Method	K.Kaneko
16:25-16:45	O-64	Microstructure and Erosion Characterization of WC-Co Type Coatings on Ti6Al4V Alloy Prepared by HVOF Thermal Spray Process From Different Particle Size of Powders	A. Iwaniak
16:45-16:55		Closing Remarks	S.Takahashi

[Conference Room 102]

Chair: E.Byon

Testing & Characterization	Paper No.	Title	Speaker
9:00-9:25 [Invited]	I-6	Thermal Spray Coatings : The Importance of Inter-Splat Cracking and Debonding	G.Sundararajan
9:25-9:45	O-47	Determination of Thermal Spray Coating Property with Curvature Measurements	T.Nakamura
9:45-10:05	O-48	Influence of Process Parameters on The Adhesion of Plasma Sprayed Ferrous Material Coatings on Aluminum Alloy Substrates	K.Fujimori
10:05-10:25	O-49	Study on The Mechanical Characteristics of Thermally Sprayed Steel Plates	T.Fukushima
10:25-10:45	O-50	Evaluation of Hydrogen Degradation of Steel Plates by In Situ Ultrasonic Testing with 2D Phased Array Matrix Probe	M. Szwed

10:45-11:00

(Break)

Chair: T.Nakamura

Application	Paper No.	Title	Speaker
11:00-11:20	O-51	Sealing Process and Electric Properties of Thermal Sprayed Alumina Layers for Non-Thermal Dielectric-Barrier-Discharge Plasma Actuator	S.Kuboya
11:20-11:40	O-52	Comparable Study of Electric Properties in Plasma Sprayed Ceramic Coatings	T.Tosaki
11:40-12:00	O-53	Study on The Application of Aluminum Phosphate Sealant for Thermal Spray Nickel Chromium Coating	L.T.Quy

12:00-13:00

(Lunch break)

Chair: S.Adachi

Wear1	Paper No.	Title	Speaker
13:00-13:20	O-54	Microstructure and Sliding Wear Performance of Plasma Sprayed TiB ₂ -Ni Coatings Deposited from Agglomerate and Sintered Powder	H.B.Zhu
13:20-13:40	O-55	Fabrication, Characterization, and Lubricated Wear Behavior of Plasma Sprayed Carbon-Fiber Reinforced Alumina Coatings	H.Li

13:40-14:00	P-13	Residual Stresses in WC-Co Surface Coated Systems Studied by High Resolution Neutron Diffraction	V.Luzin
14:00-14:20	O-57	Cavitation Erosion Properties of HVOF Sprayed WC Cermet Coatings	Y.Ohide
14:20-14:40	O-58	Structural Changes of WC-CoCr Thermally Sprayed Coatings After Dry Sliding Experiments and Real Application	J.A.Wesmann
14:40-15:00	O-59	Oxidation and Frictional Properties Of WC-Cr ₃ C ₂ - Ni Cermet Coating	Y.Ishikawa

15:00-15:20

(Break)

Chair: M.Suzuki

Wear2	Paper No.	Title	Speaker
15:20-15:40	O-60	Preparation of Al/Al ₂ O ₃ Composite Coating on Mg Alloy By LT-HVOF Plus MAO	J.Zhang
15:40-16:00	O-61	Multimodal Pore Sized Porous YSZ Coating Formation by Flame Spraying of Hollow-Spherical Powder	H.B.Huo
16:00-16:20	O-62	Fabrication of Dense Ceramic Coatings by Using HVOF Spraying	J.H.Kim
16:20-16:40	O-63	Assessment of The Microstructure of The Self-Fluxed Alloy Sprayed Coatings Re-Melted by High Frequency Induction Heating	K.Sonoya

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[Multi-Purpose Hall]

Poster session	Paper No.	Title	Speaker
Nov.26-27	P-1	Low-Temperature and High-Efficiency Material Processings Using Supersonic Plasma Jets in Thermodynamical and Chemical Nonequilibrium State	H.Tahara
	P-2	Effect of Oxides on the Mechanical Properties of Gas Tunnel Type Plasma Sprayed Cu ₃₆ Zr ₄₈ Al ₈ Ag ₈ Metallic Glass Coatings	A.Kobayashi
	P-3	Heat Treatment of Thermal Spray Duplex Coating System of Aluminum - Nickel Chromium Alloy on Carbon Steel	L.T.Quy
	P-4	Impact of Substrate Surface Temperature on the Phase Evolution of Plasma-Sprayed YSZ Splat	C.J.Li
	P-5	Effect of Substrate Type on the Splat Morphology of Plasma-Sprayed Copper Splats	C.J.Li
	P-6	Effect of Sintering and Phase Transformation on the Microstructure and Mechanical Properties of Plasma-Sprayed 8YSZ and 20YSZ Coatings	G.J.Yang
	P-7	Modeling Thermal Conductivity of Thermally Sprayed Coatings with Vertical Cracks	G.J.Yang
	P-8	Combined Low Temperature Plasma Carburizing and Nitriding of Plasma Sprayed Austenitic Stainless Steel Coating	S.Adachi
	P-9	Microstructural Evolution of Thick W Deposit During Low Vacuum Plasma Spraying	D.G.Roh
	P-10	Doped-LaCrO ₃ Interconnector Coating by Plasma Spraying Route	J.W.Seo
	P-11	Characterization of Several Plasma Sprayed Coatings for Piston Ring Application	H.Li
	P-12	Microstructure Control on Suspension Plasma Sprayed Ceramic Coating	M.Suzuki
	P-14	Wear And Corrosion Characteristics of WC-CoCr And CrC-NiCr Coatings Prepared by High Velocity Oxygen Fuel Thermal Spray Process	Y.H.Jeong
	P-15	Effect of Powder Structure on Optical Performance of Vacuum Cold Sprayed Tin Coatings	Y.Y.Wang
	P-16	Microstructure and Wear Characterization of Cold-Sprayed FeAl/WC Intermetallic Matrix Composite Coating	H.T.Wang
	P-17	Compressive Strength Test of Metal Powder Particles for Cold Spray Process	T.Kuwashima

	P-18	Room Temperature Aerosol Deposition of Nanocrystalline YSZ Film for Solid Oxide Fuel Cell	A.L.Gil
	P-19	Thermal Radiation Measurement in Ultrafast Phenomena as a Process Monitoring Tool	K.Shinoda
	P-20	Atmospheric Corrosion of Zinc Sprayed Coating in Vietnam	L.T.H.Lien
	S1 ~28	Posters of student session speakers	Student session speakers