This column is a forum to inform the thermal spray community on current activities in institutes and research centers active in the field of the thermal spray. Research efforts carried out in these organizations are oftentimes the starting point of significant developments of the technology that will have an impact on the way coatings are produced and used in industry. New materials, more efficient spray processes, better diagnostic tools, and clearer understanding of the chemical and physical processes involved during spraying are examples of such developments making possible the production of highly consistent performance coatings for use in more and more demanding applications encountered in the industry.

This column includes articles giving an overview of current activities or a focus on a significant breakthrough resulting from research efforts carried out in institutes and research centers around the world. To submit an article for this column, contact: Dr. Christian Moreau, National Research Council Canada, Industrial Materials Institute, 75 de Mortagne, Boucherville (Québec), Canada J4B 6Y4; tel: 450/641-5228; fax: 450/641-5105; e-mail: christian.moreau@cnrc-nrc.gc.ca.

The Center for Thermal Spray Research (CTSR)—State University of New York at Stony Brook

The Center for Thermal Spray Research (CTSR) at the State University of New York at Stony Brook is a designated U.S. National Science Foundation (NSF) Materials Research Science and Engineering Center (MRSEC). CTSR-Stony Brook was an outgrowth of the Thermal Spray Laboratory set up in the late 1970s by Prof. H. Herman. The MRSEC program focuses on interdisciplinary and multidisciplinary approaches to materials research of the highest caliber. There are 29 MRSECs in the United States specializing in various aspects of materials physics, chemistry, and engineering. Details about these Centers are available at www.mrsec.org. CTSR was established as a MRSEC in 1996 following a year-long national competition and supported initially for a period of four years. In 2000, CTSR was reestablished for an additional five-year period.

The mission of CTSR is to promote multidisciplinary research, education, and knowledge transfer related to thermal spray materials science and engineering. CTSR has established an interdisciplinary team, bringing concerted, integrated effort in order to elevate the fundamental understanding of the process and its relation to the complex microstructural characteristics of the deposit and thus to their material properties.

CTSR has established liaisons among U.S. and foreign universities, national laboratories, and industry, allowing fresh research thrusts and enhanced graduate and undergraduate training. Now in its second round of five-year funding from the NSF and working with a wide range of manufacturing companies, the CTSR continues to engage in fundamental research through their integrated partnerships that has resulted in the development of highly relevant new insights into thermal spray process and characterization of coatings.

At present, CTSR comprises 10 faculty-level investigators, several national laboratory affiliated participants, three post-doctoral fellows, and about a dozen graduate students and several part-time undergraduate students. In addition to Materials Science and Engineering, the senior participants represent diverse fields including mechanical engineering (thermal and fluid sciences, solid mechanics), geochemistry, chemistry and computer science. The research is broken into a main interdisciplinary research group and a seed topic. The research group titled, "Integration of Design, Materials, and Processes," systematically addresses the characteristics of thermal spray deposited materials with respect to their unique microstructure and processing attributes. A means to achieving this linkage is through the concept of *process maps* (Fig. 1). These maps can be generated from modeling or experimental data and are based on understanding of basic mechanisms. The ultimate goal is to provide fundamental knowledge to materials designers to integrate these complex layered systems.

Early on, the original goal of the CTSR was "To gain a fuller understanding of the processing, microstructures and properties, and thus, to contribute to materials science research, to the thermal spray industry and the industrial community in general." This initial goal was achieved through interdisciplinary, collaborative research efforts. Today's mission of the CTSR builds upon this scientific foundation to focus on achieving the goal of "prime-reliant thermal spray coatings and functional surfaces."

The key goals of the CTSR today are:

- Integrated approach to process-materials-properties through modeling/experiments,
- Mechanics-based design of TS-processed layered and graded structures,
- Advanced process maps (models/experiments),
- In situ and ex situ sensing for property evaluations and microstructural control,
- Advanced neutron and synchrotron based characterization methodologies, and
- Nonequilibrium and chemical precursor based synthesis of functional materials.

These goals are tied to research-related education, enhanced educational outreach, and expanded interaction with in-

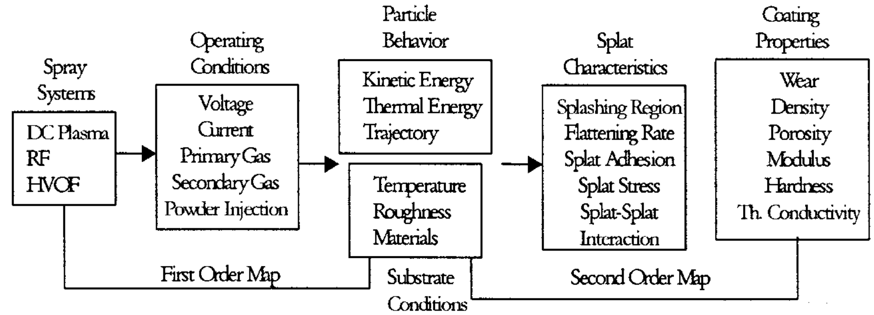

Fig. 1 Process map generated from modeling or experimental data provides fundamental knowledge to materials designers to integrate these complex layered systems

dustry and serve as a national resource for this expanding technology. More details on the various activities can be found at www.sunysb.edu/ctsr. Some highlights of CTSR's research are described below.

Microstructure and Defect Characterization. Comprehensive efforts involving multidisciplinary characterization/scattering techniques along with property measurements have been employed for an integrated approach toward studying porosity in thermal sprayed coatings. While quantification/visualization of porosity have been obtained using high-resolution x-ray computed microtomography (CMT) studies, information regarding pore-size distribution has been sought using ultrasmall angle x-ray scattering (USAXS) technique, a novel direction toward characterization of plasma sprayed coatings Recent studies conducted in conjunction with the National Institute of Standards and Technology, combining well-established single and multiple small-angle neutron scattering (SANS and MSANS) with other characterization and property measurement, have established a much improved understanding of the processing-microstructure-property correlations for several ceramic systems including yttrium-stabilized zirconia (YSZ). Figures 2 and 3 show examples of results obtained using these advanced characterization techniques.

3D Simulations of Plasma Spray. In conjunction with INEEL, CTSR has been very active in examining the three-dimensional features of a plasma spray plume and particles through numerical simulations (Fig. 4). Special attention has been directed to the efforts of injection carrier gases on the plasma jet and entrained multiple particle behavior. A database has been built based on process conditions as well as particle behavior, such as temperature velocity and location. The 3D approach provides a more comprehensive assessment of the process through simulation.

Process Science and Maps. Significant progress has been made in process maps at the CTSR. Process maps not only provide a new scientific approach to analyzing complex phenomena, but also offer new technological insights into the process. The newly derived group parameter melting index (MI) along with Reynold's number (Re) are used to provide a more complete assessment of a particle's thermal history especially for refractory materials such as YSZ and can be used to distinguish splat morphology and assess deposit efficiency in a process map. Furthermore, both fundamental characteristics such as splat residual stress to practical attributes such as deposit efficiency can be correlated to the MI parameter. Examples of first- and second-order process maps are shown in Fig. 5 and 6, respectively.

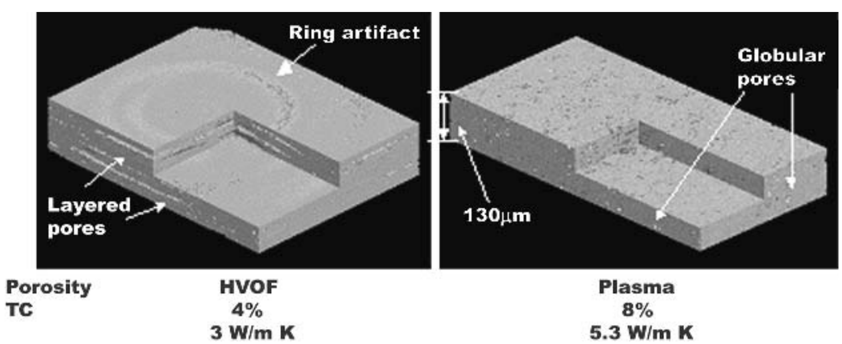

Fig. 2 Computer microtomography of (a) HVOF and (b) plasma sprayed alumina coatings revealing anomalies in the pore structure within the coating and its effects on coating properties. TC, thermal conductivity

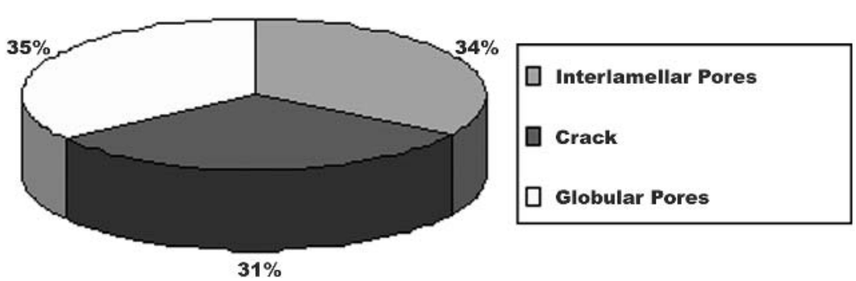

Fig. 3 Quantitative delineation of porosity in plasma sprayed zirconia obtained by small-angle neutron scattering (SANS)

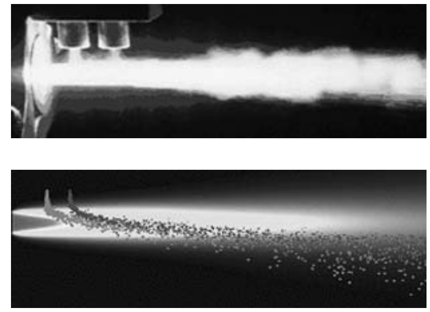

Fig. 4 Example of process simulation and visualization. Top: flame photograph from INEEL

Elastic Properties of Coatings. Instrumented spherical indentation methods have been used to probe the elastic moduli and the elastic plastic response of coating, yielding new insights into microstructure property relationships (Fig. 7). Through an extension of this approach, it is now possible to extract stress-strain relationships of nickel-aluminum coatings processed by various thermal spray methods. These methods in combination with some recent strain mapping allow unprecedented quantitative assessment of coating properties for design.

In Situ Sensing for Property Determination. An in situ sensor for measurement of modulus and stress has been developed through the CTSR, with the intention of connecting particle state with the deposit condition (e.g., stress state, imperfection structure). This sensor will enable determination of design relevant properties of coatings either in situ or within minutes after processing. Further-

In Situ Measured Properties in Graded Coatings

Composition	Quenching Stress, MPa	Modulus, GPa
NiCrAlY (NC)	278	182
NC + 20% YSZ	187	156
NC + 40% YSZ	80	129
NC + 60% YSZ	58	101
NC + 80% YSZ	33	71
100% YSZ	11	47

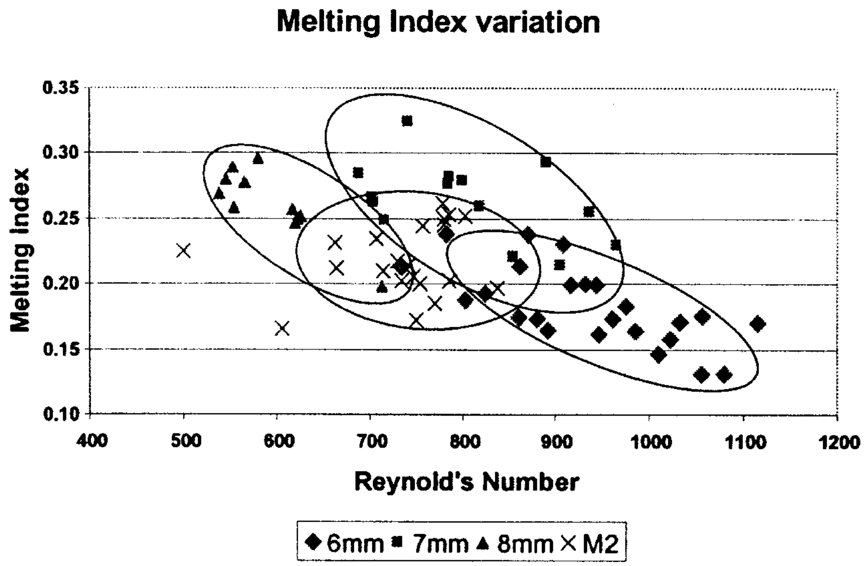

Fig. 5 First-order process map representation for plasma sprayed YSZ with various nozzle dimensions, powder feedstock, and process parameters

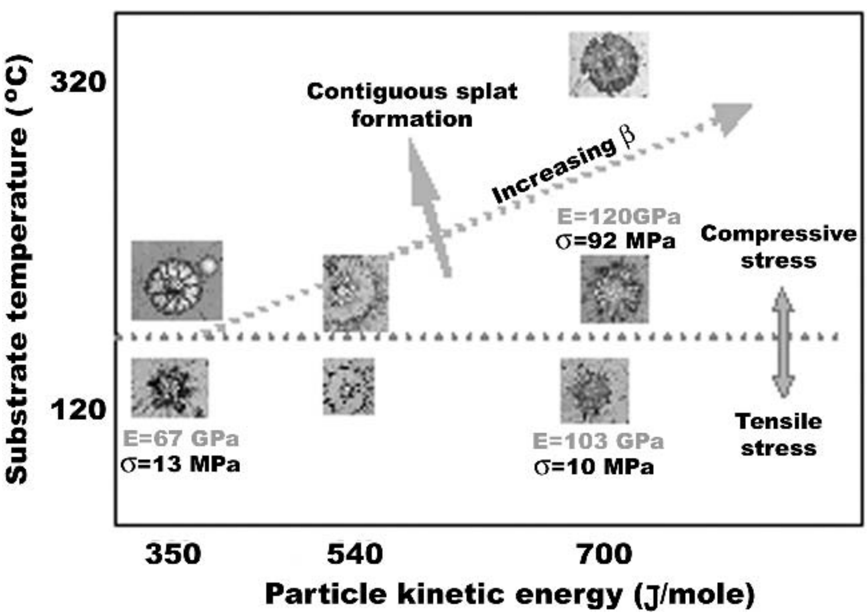

Fig. 6 Second-order process map representation for plasma sprayed molybdenum on steel, identifying regimes of splat morphologies, substrate temperature effects on residual stresses and modulus vector

more, this method may allow more quantitative assessment of process-structure-property relationship in aiding process/quality control.

A schematic of a process control sensing apparatus under development by Integrated Coating Solution is shown in Fig. 8.

Industrial and Educational Outreach. Through the support of the NSF, CTSR has made major strides in research, education, and aid-to-industry and has leveraged this support through an extensive network of value-added resources. The industrial outreach aspects of the CTSR have historically been quite strong and, with the NSF program, CTSR continues to look for novel approaches of transferring the scientific knowledge out to industry. Much effort has been done to establish relationships with companies that

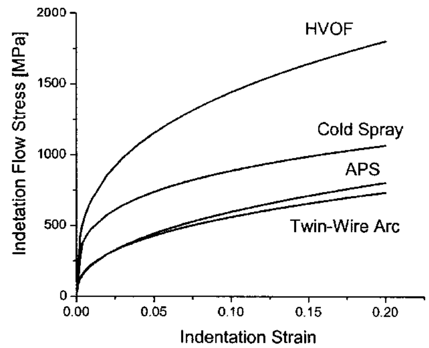

Fig. 7 Example of stress-strain relationships in various nickel-aluminum coatings obtained from instrumented indentation

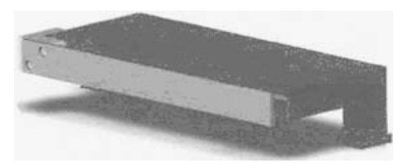

Fig. 8 Schematic of in situ coating property sensor (ICP)

can quickly and easily build upon the strong, fundamental research foundation built by the CTSR and implement it to the betterment of industry.

Central to outreach efforts is the "Consortium for Thermal Spray Technology," which was initiated in April 2002. Ten leading global companies, from end-users to powder producers, are active consortium participants and help formulate the annual precompetitive research goals. CTSR also hosts an annual workshop and classes focused around an industrially relevant theme. Previous years' themes have been "Linking Research to Practice" and "Life Cycle Assessments for Thermal Spray Coatings."

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Tecnar Automation Ltée and Sulzer Metco Announce Strategic Alliance

The world leader in thermal spray technology, Sulzer Metco, and the world leader in thermal spray sensor technology, Tecnar Automation Ltée, have joined forces with Sulzer Metco, becoming the exclusive, global source for Tecnar spray sensor systems in the thermal spray market.

"This is a fantastic opportunity for both organizations and for the entire thermal spray industry," states Erich Brenner, Sulzer Metco Manager of Thermal Spray Marketing. "Sulzer Metco's strong global market presence and commitment to process automation, coupled with Tecnar's expertise in online process monitoring and control, create a unique partnership with clear advantages for our customers."

Online sensor and monitoring technology redefines the thermal spray coating processes standards of quality and reliability; whether for use in R&D or production environments. Coating results are more predictable and reproducible. The time and cost to develop efficient and reliable coating parameters can be substantially reduced. The ability to constantly monitor hardware and process parameters optimizes the life of wear and consumable parts and minimizes costs resulting from rejects and reprocessing. Adoption of spray stream monitoring into coating specifications will reduce the requirement for testpieces and offline laboratory analysis—providing additional cost reductions.

Customers can choose online monitoring and sensor equipment to fit their requirements, which is marketed by Sulzer Metco under the Spray Sentry name. Systems with basic capability for spray plume monitoring, such as the Tecnar PlumeSpector, and more sophisticated systems with advanced monitoring and data acquisition features, such as the Tecnar AccuraSpray G-3, are available.

Spray Sentry is available as a stand-alone package or can be integrated into the Sulzer Metco MultiCoat Vision system—the only thermal spray controller currently marketed with an optional software package, specifically designed for thermal spray sensor and monitoring functions. Furthermore, customers can upgrade their thermal spray sensor and monitoring equipment as their needs change.

Tecnar Automation Ltée is a unique combination of research, production, and international sales professionals who develop, manufacture, and market niche technologies for industrial process automation. The company was established more than 15 years ago as a spin-off from Canada's National Research Council.

Through its three divisions focused around automated pipe welding, thermal spraying sensors and noncontact laser ultrasonics, Tecnar has privileged business relationships worldwide with a vast array of organizations ranging from small, privately owned, job shops to world leaders in the fields of aerospace, power generation, or heavy industry.

A global leader in surface engineering solutions and services, Sulzer Metco offers a broad range of thermal spray, thin-film and other advanced surface technology equipment, integrated systems and materials; specialized coating and surface enhancement services; manufactured components for the turbine, automotive, and other industries; and global customer support services.

Sulzer Metco provides a global manufacturing, distribution, and service network and caters to aerospace, power generation, automotive, and other strategic-growth industries.

Contact: Web: www.sulzermetco.com or www.tecnar.com.

Wall Colmonoy Corporation Recognized by Modine as Preferred Supplier

Wall Colmonoy Corporation has been selected for the Preferred Supplier Award from Modine Manufacturing Company, a worldwide leader in heat transfer and heat storage technology. Only five top companies out of 1100 suppliers qualified for the award.

Dr. S. Rangaswamy, Director of Technical Services, and Dan Nazzarett, Plant Manager of Wall Colmonoy Los Lunas, New Mexico, alloy manufacturing plant, accepted the award at Modine world headquarters in Racine, Wisconsin, on 9 July 2003.

The Preferred Supplier Award is presented to suppliers who demonstrate excellence in the four key measures of quality, on-time delivery, cost reduction, and responsiveness. Suppliers are rated and rewarded annually based on a 25-point scoring for each measure. Preferred status is awarded to suppliers who score 90 points or higher.

Wall Colmonoy Corporation received a perfect score of 25 in both the quality and cost-reduction categories and above average in on-time delivery and responsiveness for a total annual Supplier Rating of 91.31. Wall Colmonoy Corporation will benefit with greater visibility throughout Modine, an improved competitive position, and increased access to Modine's technical assistance.

Contact: Shirley Clemens, Marketing Coordinator, 30261 Stephenson Hwy, Madison Heights, MI 48071-1650; tel: 248/585-6400, ext. 244; fax: 248/585-7960; e-mail: sclemens@wallcolmonoy.com; Web: www.wallcolmonoy.com.

New Literature Available on Colmonoy 57 PTA for Processing Plastics

A new two-page data sheet from Wall Colmonoy Corporation details Colmonoy 57 PTA, a nickel-base hard-surfacing alloy specifically formulated for application to extrusion or injection molding screws used in processing plastics.

The data sheet has detailed information on the chemical and physical properties of Colmonoy 57 PTA and has a 200× micrograph that identifies the constituents of the alloy. Methods of application, methods of finishing, typical uses, and lists of base metals that can be overlaid are also provided.

Colmonoy 57 PTA is a unique Ni-Cr-B alloy containing tungsten for a tougher matrix that leads to a substantial increase in wear resistance over Colmonoy 56 PTA, the plastics industry standard. Conventional composite powders add tungsten granules to the mix externally after production. In Colmonoy 57 PTA, tungsten is alloyed into the powder during the manufacturing process, thus allowing its tough, abrasion-resistant properties to remain uniformly consistent throughout the coating. Additionally, tungsten reduces the sensitivity of the material to hardness variations during PTA application, thus allowing fewer opportunities for base metal dilution or cracking.

Colmonoy alloys are manufactured to ISO 9001: 2000 standards. Upon request, a Certificate of Quality Conformance will be provided. Call to request a print copy of the Colmonoy 57 PTA data sheet or download a copy in portable document format (PDF).

Contact: Shirley Clemens, Marketing Coordinator, 30261 Stephenson Hwy, Madison Heights, MI 48071-1650; tel: 248/585-6400, ext. 244; fax: 248/585-7960; e-mail: sclemens@wallcolmonoy.com; Web: www.wallcolmonoy.com/News/recent.htm; photo of a PTA application to a plastics extrusion screw: www.wallcolmonoy.com/News/EditInfo.htm.

Wall Colmonoy Achieves 50% Increase in Foundry Air Quality with New, Improved Equipment

Wall Colmonoy Los Lunas (New Mexico) has improved the air quality in its foundry by 50% by purchasing and installing a Farr GS 4 dust collector to reduce airborne particles of nickel that accumulate during the making of a charge. The new equipment reduces the airborne dust, protects the foundry workers from breathing it, and helps keep the foundry clean. The project is an objective of the plant's internal Environmental Management System.

The Wall Colmonoy Los Lunas Environmental Management System was established in January 2002. The system integrates environmental management into day-to-day operations and is committed to showing improvement in manufacturing processes.

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News from Air Force Research Laboratory

Test Modification Prevents Delays

A team of engineers and scientists in the Propulsion Directorate's Turbine Engine Fatigue Facility (TEFF) kept a national collaborative program on track by expanding and modifying test hardware to measure a one-of-a-kind engine component (Ref 1). The team developed and implemented a redesign to the traveling wave excitation system in order to support the third phase of the Integrated High Performance Turbine Engine Technology (IHPTET) program. They used the excitation system, which measures high-response resonant modes with laser scanning vibrometry, to test the unique core-driven fan stage (CDFS) of the XTC 76/3 demonstration engine.

The CDFS is a unique integrally machined bladed disk (blisk) stage, incorporating two distinct stacked blade rows in a single stage. The design is unique to General Electric (GE) Aircraft Engines and Allison Advanced Development Company. This blisk is one of only two components of this type ever produced. Due to its geometric features and unique design, conventional finite-element analysis and laser vibrometry produced inconsistent results. Since the blisk experienced large amplitude vibrations in two modes during engine testing, researchers needed insight into the structural dynamics' characteristics of the entire blisk to ensure proper redesign and modification by the manufacturer.

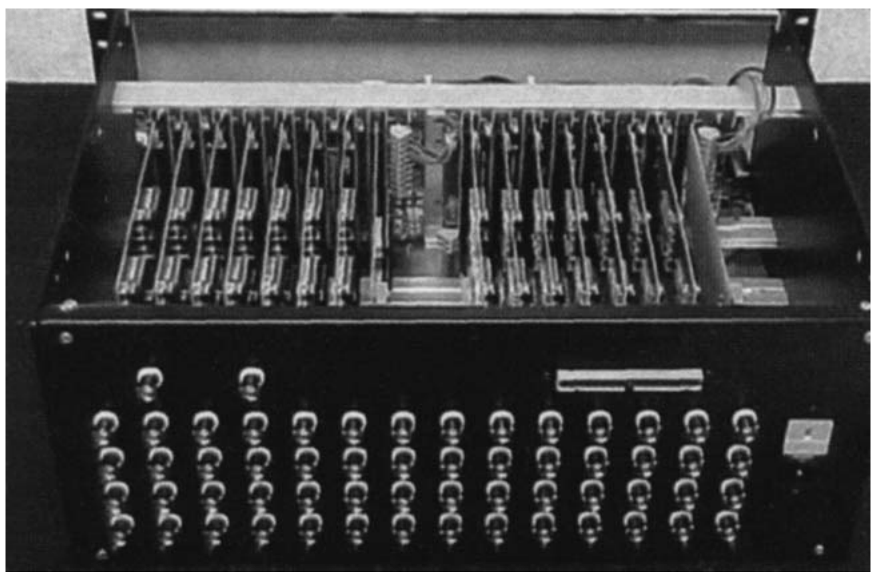

Fig. 1 Phase-shifting circuitry of the traveling wave excitation system

To investigate the phenomena experimentally, the TEFF Team elected to use the traveling wave excitation system, but they needed to perform a major redesign and expand the system's capability in order to use the system. In less than six weeks, the team redesigned and expanded the excitation system's electronic circuitry (see Fig. 1) from 18 to 37 channels and also expanded the laser scanning vibrometry capability—both in number of excitation channels and laser scan field-of-view—to enable coverage of the entire blisk necessary for the experiments (see Fig. 2). This necessitated a significant level of real-time engineering. Since the traveling wave system is based on electronic mixing of two sinusoidal signals (a single sine wave and a single cosine wave), the team was able to electronically change the excitation to cover any phase angle, engine order, or number of blades without having to purchase new hardware. Thus, they performed numerous innovative design and engineering solutions to modify the system and add nearly twice the channels, all without significant cost.

Fig. 2 CDFS mounted on the TEFF's traveling wave excitation system

Through strain-gage data from the demonstrator engine and previous analysis by GE, the team defined modes of interest and developed a test program to obtain the needed data. Using acoustic excitation, the team performed chirp tests covering a frequency range of 0 to 9000 Hz on both the fan and the core airfoils. Using a scanning laser vibrometry system, the team obtained measurements of the blisk dynamic response during excitation as well as the dynamic response characteristics of all airfoils, on both inner and outer panels, for all resonant modes that exist in the operating range of the engine. They also measured mistuning patterns, stress localization, and phase relationships between inner and outer panels. The data obtained in this test program validated the intended modifications to the blisk, so the manufacturer could modify and return the blisk to the demonstrator engine safely and expeditiously.

Thanks to the TEFF Team's commitment and perseverance, they completed the entire test program in a short two-week window between engine teardown and the required delivery to the machine shop for modification. The team's quick response in making the necessary modifications to the test and data acquisition systems provided high-fidelity data to the program. By completing the test in a timely fashion, the team maintained the XTC 76/3B demonstration engine test schedule, which is critical in reaching IHPTET Phase 3 goals.

Reference

1. C. Cross, "Turbine Engine Fatigue Facility Provides New Tools for Turbine Engine Durability Goals," *AFRL Technol. Horiz.,* Dec 2001, *2*(4), pp.14-15.

Excerpted from article by Dr. Charles Cross, of the Air Force Research Laboratory's Propulsion Directorate, for *AFRL Technology Horizons,* Sept 2003. For more information contact TECH CONNECT at 800/203-6451 or place a request at www.afrl.af.mil/techconn/index.htm. Reference document PR-02-08.

Awards Information

Richard Knight named ASM International Fellow

For distinguished contributions in the field of materials science and engineering, Dr. Richard Knight has been named an ASM Fellow "for important contributions to thermal spray research and technology."

ASM established the honor of Fellow in 1969 to recognize distinguished achievements of technical and professional leaders and to develop a broadly based group who serve as advisors to the society.

Knight, Research Professor and Director of the Center for Plasma Processing of Materials, Drexel University, Philadelphia, PA, is vice president of the ASM Thermal Spray Society. An enthusiastic supporter of ASM TSS, he has been the Chair of the ASM TSS Training Committee since 1997, a member of the ASM TSS Information Development and Delivery Committee, the ASM TSS Nominating Committee, an ASM TSS Board member, and the ASM TSS Secretary/Treasurer. Knight has been a member of the International Thermal Spray Conference (ITSC 2001) Technical Program Committee, a Revising Technical Editor for ASM Materials Engineering Institute (ASM MEI) Course No. 51, and a member of the ITSC "Best Paper" panel of judges. A member of ASM International since 1990, Knight has been the recipient of the 2000 ASM MEI "Instructor of Merit" award and co-instructor of ASM MEI Thermal Spray Technology course. Knight is an active member of the Institute of Electrical and Electronic Engineers (IEEE) and the representative for Drexel University in the International Thermal Spray Association.

Axial III Plasma Spray Technology

Introduction

Northwest Mettech Corporation has been producing the unique and proprietary "Axial III" Axial Injection Plasma Spray Torch since 1994 and currently has a number of these systems in service around the world. The Axial III has established itself as an efficient and reliable tool to produce coatings for the aerospace, printing, automotive, and chrome replacement industries. Companies like

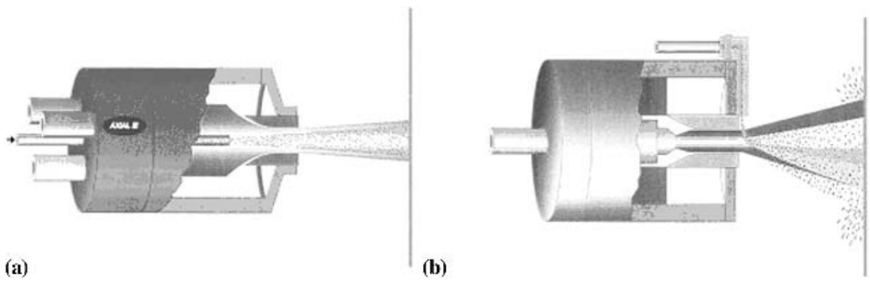

Fig. 1 Axial feed schematic (a), and traditional radial feed schematic(b)

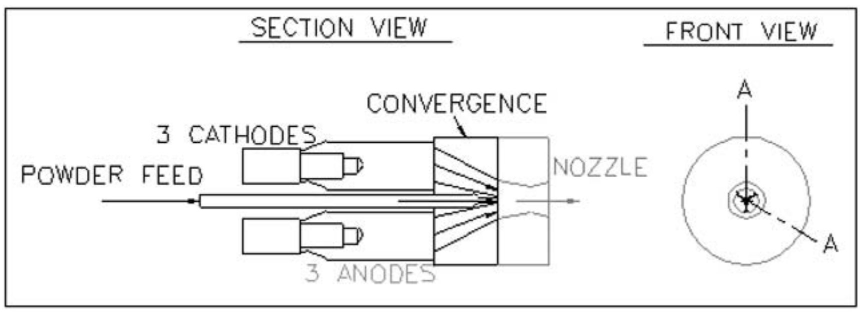

Fig. 2. Axial III torch schematic, sectioned for clarity

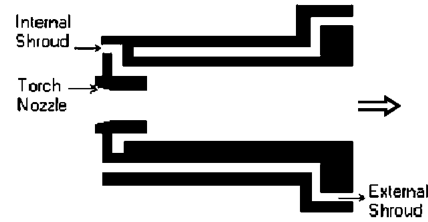

Fig. 3 Axial III shroud

Rolls Royce and Mitsubishi have integrated the Axial III system into their own coatings development programs.

The main benefits of the Axial III torch are:

- High deposition efficiencies,
- High feed rates,
- Consistent coating quality,
- Less wasted powder, and
- Low oxygen contamination.

Basic Principle of the Axial III Plasma Spray System

The use of plasma sprayed coatings is well established with more than 40 years of industrial application. The Achilles heel of the plasma spray process has been the necessity to feed the powder feedstock radially into the plasma flame. Since all commercially available powders have a particle size distribution, the larger particles tend to pass through the flame and the smaller or lighter particles are not able to fully penetrate the flame or vaporize. As a result of radial injection, about half the sprayed powder does not adhere to the component and is lost as expensive waste.

With Mettech's Axial feed systems this problem is eliminated (Fig. 1). The particles are fully entrained into the plasma flame and most (up to 95%) of the powder is sufficiently melted to adhere to the component. This not only yields more uniform, dense, and clean coatings, but also significantly improves the economics of the process.

Axial III Electrode Structure

The Axial III (Fig. 2) is an axial injection plasma spray torch. Axial feeding of the materials has many advantages over conventional radial systems. The advantages include high feed rates, high deposition efficiencies, and clean, well-structured coatings.

The Axial III consists of three anodes and three cathodes, each set of electrodes being powered by its own power supply linked to the control system. The individual plasma streams are converged in the nozzle where the powder is also injected.

Axial III Shroud

The Axial III shroud is shown in Fig. 3. The shroud is fixed to the main body of the Axial III torch by removing the front cap. The shroud replaces this front cap and is also water cooled from the main torch water supply. The shroud consists of two gas streams that encapsulate the primary plasma gas flow. The internal shroud uses argon that is supplied through a passage between the shroud assembly and the torch nozzle. The external shroud supplies a centric, high-velocity gas stream, usually nitrogen, to further reduce entrainment of oxygen.

Contact: Northwest Mettech Corp., 120-1200 Valmont Way, Richmond, BC V6V 1Y4, Canada; tel: 604/244-1663; fax: 604/244-1673; Web: http://www.mettech.com/.

News from TSS

ASM Thermal Spray Society 2003 Election Results

"In accordance with the ASM Thermal Spray Society (ASM TSS) Rules for Governance, the 2003 election is complete," reported William W. Scott, Executive Director of the ASM Thermal Spray Society. The following ASM TSS Board appointments became effective 1 October 2003.

Raymond J. Sinatra, Sr. Experimental Metallurgist, Processes and Repair R&D, Rolls Royce Corporation, Indianapolis, IN, joins the ASM TSS board as a representative from the user segment. With 34 years of thermal spray experience, he has worked at various levels within the thermal spray area including that of supplier and user, and has an extensive knowledge of the aircraft industry, thermal spray's largest single segment. He is a recent past chair of the ASM Indianapolis Chapter, where he has been active since 1990, and has participated and presented papers at various ASM TSS conferences. Sinatra

Raymond J. Sinatra

looks forward to working with the ASM TSS Board to further improve the analysis and quality standards used to apply and evaluate thermal spray coatings, thereby increasing the knowledge base of all users.

Two reelected ASM TSS Board members include:

Pierre Fauchais

Prof. Pierre Fauchais, Ph.D. University of Limoges, Faculty of Science, Limoges, France. Inducted into the ASM TSS Thermal Spray Hall of Fame in 1998, Fauchais has been a board member since 2000, a member of Journal of Thermal Spray Technology Committee, and served on the 2003 ITSC Organizing Committee. He has 35 years of experience in plasma spraying with a close connection to industry. He continues to organize continuing education courses, conferences, and symposia. His knowledge and experience will enable the ASM TSS to continue to implement and bring forth to the industry "state-of-the-art" advances in thermal spraying. Fauchais is also a member of MRS, the Thermal Plasma Society, and the International Society of Plasma Chemistry, having served as a Board member for 16 years, four of those as chairman.

Joseph P. Stricker

Joseph P. Stricker, President, St. Louis Metallizing Company, St. Louis, MO. Stricker recently received his ASM 25-year membership award and has served on the ASM TSS Board since 2001. He served as co-chairman of the ASM TSS Training and Certification Committee from 1995 to 1996 and continues his service on the current ASM TSS Training Committee and as a session chair at various thermal spray conferences. Mr. Stricker is also very active with the International Thermal Spray Association, having served on their executive committee since 1995.Stricker looks forward to continuing to represent the service segment of the thermal spray industry at the ASM TSS board level.

Appointed by the TSS Board:

Roland Seals

Dr. Roland Seals, Technical Manager, Oak Ridge Y-12 National Security Complex, Oak Ridge, TN, has been appointed by the ASM TSS Board to serve the remaining term vacated by Mr. Larry Moskowitz through 2004. Seals has been a member of the Journal of Thermal Spray Technology Committee since 1996, is a member of the ASM TSS Information and Development and Delivery Committee, and a past member of the ASM TSS Industry Development and Liaison Committee and the Technology Develop ment Committee. He has also participated as a cochair for ASM TSS technical sessions at various conferences and is a past chair of the ASM Oak Ridge Chapter. Seals looks forward to working with the ASM TSS Board to advance the impact and growth of the ASM Thermal Spray Society through the continued development of the technical knowledge base of coating materials and processes.

People in the News

Bruce Dulin Joins Osram Sylvania

Bruce Dulin

Bruce Dulin joined Osram Sylvania in May 2003 as a senior application engineer for thermal spray products. "Having worked for several leading companies in this field, Bruce joins us with over 25 years of industry experience. He will help to grow our thermal spray business by providing technical support to our customers, working with product marketing to identify new product and sales opportunities, and by collaborating with R&D and manufacturing to arrive at cost-effective solutions," says Cori Lasco, marketing manager for the Sylvania thermal spray products group.

Contact: Web: www.sylvaniathermalspray.com.

Purush Sahoo Joins Hickham Industries

Purash Sahoo

Purush Sahoo earned his Ph.D. from Pennsylvania State University and has many years of coating and welding experience, most recently at Sermatech Power Solutions. Hickham Industries, based in LaPorte, Texas, just east of Houston, is the largest independent full-service turbomachinery repair, refurbishment, manufacturing, and coating facility in the world.

Contact: e-mail: purush.sahoo@hickham.com; Web: www.hickham.com.

Tom Beranek Appointed Sales and Marketing Manager at Stork Cellramic

Tom Beranek

Stork Cellramic, a member of Stork Materials Technology (SMT), announces the addition of Tom Beranek as the Sales and Marketing Manager for their Engineered Coatings Department, which is part of SMT's Surface Treatment Division.

Stork Cellramic, Milwaukee, Wisconsin, specializes in the application of thermally sprayed engineered coatings for various industries. Examples of the industries served by Stork Cellramic are printing, gas turbine, paper converting, and petrochemical. Beranek's focus will be the growth of Stork Cellramic's business through the development of surface treatment applications for new industries.

Contact: Stork Cellramic, Inc., 8399 North 87th St., Milwaukee, WI 53224-9031; tel: 414/357-0260; fax: 414/357-0279; e-mail: tom.beranek@stork.com; Web: www.storkcellramic.com.

Frank van den Berge Appointed General Manager of Stork Technimet

Frank van den Berge

Frank van den Berge, the General Manager of Stork Cellramic, has also assumed the General Manager position of sister company Stork Technimet.

Stork Technimet, also a member of Stork Materials Technology (SMT), specializes in material testing, engineering, consulting, and failure analysis of metallic and polymeric materials. Their services include physical, metallurgical, fatigue, corrosion, chemical, and weld testing/certification.

Van den Berge will use synergies that exist between both companies to their fullest potential, thereby giving their customers a one-place-shop for all their materials and testing needs.

Contact: Stork Technimet, Inc., 2345 South 170th Street, New Berlin, WI 53151-2701; tel: 262/782-6344; fax: 262/782-3653; e-mail: frank.vandenberge@stork.com; Web: www.storktechnimet.com.