

Alfredo Valarezo Garces

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Education

2006-2008

Ph.D. in Materials Science and Engineering. Center of Thermal Spray Research. Materials Science and Engineering Department at S.U.N.Y Stony Brook University. New York, USA.

2004-2006

Masters in Materials Science and Engineering. Center of Thermal Spray Research. Materials Science and Engineering Department at S.U.N.Y Stony Brook University. New York, USA.

Supported by Institute of International Education IIE under Fulbright Scholarship Program.

1997-2003

Mechanical Engineer, Graduated Valedictorian. Mechanical Engineering Department; National Polytechnic School. Quito, Ecuador

Professional Experience

May 2008 –Present

Center for Thermal Spray Research, SUNY at Stony Brook, USA.

Post-Doctoral Research Associate

Responsibilities: Researcher in sponsored programs on thermal spray process design and characterization of coatings. (Sponsors: NSF, and Consortium of Companies of Thermal Spray Technology). Fundamental understanding of designed processing-microstructure-property-performance relationships in ceramic, metal and cermet materials is the goal of the investigation.

August 2004 –May 2008

Center for Thermal Spray Research, SUNY at Stony Brook, USA.

Graduate Research Assistant

Responsibilities: Ph.D. dissertation was concentrated in process design and control of high-velocity-oxy-fuel spraying and studies of stress development during spraying as a tool for coating design. Extensive research has been done in a number of processes and materials at several R&D facilities of companies, and complemented with characterization techniques at NIST (National Institute of Standards and Technology), Materials Science Department at SUNY Stony Brook, Center for Thermal Spray Research, and the Plasma Physics Institute in Prague.

December 2003 – July 2004

General Motors Company, Ecuador.

Materials Handling Junior Engineer.

Responsibilities: Materials distribution and quality control for assembling production line.

October 2003 – December 2003

VYMSA: Metallurgic forging Company, Ecuador.

Metrology Junior Engineer.

Responsibilities: Metrology Control and development of ISO-9000 documentation. Production Quality Standard. Part time job.

September 2003 – December 2003

National Polytechnic School, Mechanical Engineering Department, Ecuador.

Assistant Professor.

Responsibilities: Instructor of a course in “Materials Selection for Design”.

September 1999 – August 2003

National Polytechnic School, Mechanical Engineering Department, Center of Virtual Research in Materials, Ecuador.

Department Assistant.

Responsibilities: webmaster of mechanical engineering department webpage, maintenance of laboratory equipment, reviewer of technical standards, organization of national and international conference meetings.

- Awards**
1. Graduate Student Scholarship, International Thermal Spray Association, 2005.
 2. Fulbright Scholarship, IIE Institute of International Education, 2004-2006.
 3. Rice-Cullimore Scholarship Award. ASME: American Society of Mechanical Engineers, 2004.
 4. Valedictorian. Mechanical Engineering Department; National Polytechnic School, 2003.
- Publications**
1. A. Valarezo. **Process Design for Reliable High Velocity Thermal Spray Coatings: An Integrated Approach through Process Maps And Advanced Insitu Characterization.** SUNY Stony Brook, Materials Science and Engineering Department, Thesis Dissertation.
 2. A. Valarezo, S. Sampath, A. Gouldstone. **Process Control and Characterization of Metal Based Coatings by High Velocity Oxy-Fuel Spraying : A Process Map Approach** (in progress)
 3. A. Valarezo, S. Sampath, A. Gouldstone. **Residual Stress Analysis in High Velocity Oxy-Fuel Spraying** (in progress)
 4. A. Valarezo, S. Sampath, A. Gouldstone. **Understanding Coating Formation in Real Time via Monitoring of Residual Stress Development** (in progress)
 5. A. Valarezo. **Thermoelectric Behavior of Polyester Matrix Particle Reinforced Composites.** National Polytechnic School, Department of Mechanical Engineering. Thesis project for Mechanical Engineer degree. July 2003. Quito-Ecuador.
- Symposia Publications**
1. A. Valarezo, S. Sampath. Process Design for Reliable High Velocity Thermal Spray Coatings: An Integrated Approach through Process Maps And Advanced Insitu Characterization. 22nd International Conference of Surface Modification Technologies SMT-22. Trollhattan, Sweden, September 2008
 2. A. Valarezo, E. Mari and S. Sampath, Understanding Coating Formation in Real Time via Monitoring of Residual Stress Development, International Thermal Spray Conference, Maastricht ,Netherlands, June 2008
Best Young Scientist Contribution Award
 3. A.Valarezo, J.Japson, A.Gouldstone and S.Sampath, Residual stress development in metallic coatings by HVOF spraying, Proceedings of International Thermal Spray Conference, China, May 2007
 4. A.Valarezo, W.B.Choi, W.Chi, A.Gouldstone and S.Sampath, Process maps of NiCr coatings by HVOF spraying, Proceedings of International Thermal Spray Conference, China, May 2007.
 5. T.Varis, E.Turunen, A.Valarezo, S.Sampath, X.Liu, S.P.Hannula, Formation mechanisms, structure and properties of HVOF sprayed WC-CoCr coatings: An approach towards process maps, Proceedings of International Thermal Spray Conference, Beijing, China, May 2007.
 6. A. Valarezo, T. Varis, S. Sampath, A Fundamental Approach to the Tribological Response of Cermet Coatings by HVOF Spraying. International Cocoa Beach Conference on Advanced Ceramics and Composites, American Ceramic Society, Daytona Beach, USA. January 2007.
 7. A.Valarezo, W.Brian Choi, A.Gouldstone and S.Sampath, "Correlation between process maps for HVOF-sprayed WC-Co coatings and wear resistance, Proceedings of Int. Thermal Spray Conference, Seattle, ASM-Intl. (May 2006) Proceedings of Int. Thermal Spray Conference, Seattle, ASM-Intl. (May 2006).
 8. A.Valarezo, New Technologies for Reclamation of Surfaces. Proceedings of II International Conference of Maintenance Engineering, IPEMAN Peruvian Institute for Innovative Development and Maintenance. Lima-Perú. May 2002.
 9. A. Valarezo, Smart Materials and Applications. Proceedings of the II Bolivarian Conference of Mechanical Engineering. Quito-Ecuador. July 2001.
 10. A. Valarezo, Smart Materials for Defense Applications. Proceedings of Science and Technology Convention, DIGMAT. Ecuadorian Army. Guayaquil-Ecuador. November 2000.
- Invited Talks**
1. "Thermal Spray Technologies: Current Applications and Future Trends", National Polytechnic School of Ecuador. Quito-Ecuador. July 2006.
- Invited Research Field Demonstrations**
1. Plasma Technologies Inc. PTI. Los Angeles, CA, USA. January, 2008.
 2. Caterpillar. Peoria, IL, USA. September, 2007
 3. Praxair Surface Technologies, Indianapolis, IN, USA. August, 2007.
 4. Deloro Stellite Inc, Goshen, IN, USA. August, 2007
 5. Sulzer Metco, Westbury, NY, USA. July, 2007

**Extra
curricular
Activities**

- October 2007- Present
Chapin Apartments Residents Association-CARA. Stony Brook University
Vice-president of Chapin Apartments Residents Association
- June 2005- June 2006
ASM American Society of Metals.
Chair of ASM- Stony Brook University Student Chapter.
- August 2001- August 2004
ASME American Society of Mechanical Engineers.
Chair of ASME- National Polytechnic School Student Section.
- December 2002 – July 2003
CYTED – Iberoamerican Cooperation for Science and Technology Development.
Ecuadorian Representative for Chapter: Advanced Materials for Recovering Surfaces.
- November 2000- November 2001 / March 2002 – March 2004
Mechanical Engineering Department – National Polytechnic School.
Vice-president / Member of Academic Council of Undergraduate Students Government: