

Security Clearance: DOE Q clearance and SCI

Citizenship: USA

I am qualified for structural, thermal, and mechanical analysis of metallic and composite systems. I have four years of leadership experience as a stress technical lead and package testing program manager. I have exceptional research, analytical, written, and oral skills of basic and complex engineering tasks.

I possess a strong background in solid mechanics, micromechanics, structural analysis, and design of composite and metallic structures. I have experience in working with prototype, flight, and test hardware from conception to manufacturing. I have a history of exceptional research, analytical, written, and oral skills. by having published research papers in the AIAA journal, worked on research and development projects, and presented and published papers at technical conferences (AIAA, ASME, ASC).

I have a successful record of meeting project deadlines, creating many process analyses that save time, providing accurate stress analyses estimates for project costs, and excellent customer service. I have experience with mentoring and being the lead of a project.

Education

- ◆ **Doctor of Philosophy, Aerospace Engineering**, University of Florida, Gainesville, FL, May 2007.
Ph.D. Dissertation title: Micromechanical Analysis and Design of an Integrated Thermal Protection System for Future Space Vehicles (ITPS). <http://purl.fcla.edu/fcla/etd/UFE0019802>
- ◆ **Master of Science, Aerospace Engineering**, University of Florida, Gainesville, FL, August 2004.
Focus on solid mechanics, design and manufacturing of composite materials.
- ◆ **Bachelor of Science, Aerospace Engineering**, University of Florida, Gainesville, FL, May 2003.
Graduated Cum Laude

Professional Skills

Computer Programs

- ◆ Matlab, Maple, ABAQUS (Finite Element Modeling), FEMAP, IDEAS, AutoCAD, NASTRAN, FORTRAN, MathCad, ProE, Hyperworks, LS-DYNA, ANSYS

Technical Summary

- ◆ Fracture Mechanics
- ◆ Advanced Composite Materials/Analysis
- ◆ Thermal Mechanical Analysis
- ◆ Finite Element Analysis (FEA)
- ◆ Composite Design Workshop (Stanford U)
- ◆ Impact Analysis
- ◆ Thermal Protection Systems
- ◆ Micromechanics and Classical Plate Theory

Professional Awards

- ◆ Jacobs Engineering Spot Award for excellent work on the Advanced Space Suit Project and the Multi Purpose Crew Vehicle project (2009, 2010, 2011)
- ◆ Award of Excellence in support of the Portable Life Support System for the Constellation Program from NASA JSC. (2009)

Professional Experience

Oak Ridge National Laboratory, Knoxville, TN

2011-present

Package Testing Program Manager/Test Director

- ◆ Mechanical Engineer for the Nuclear Security Advanced Technology group.
- ◆ Program Manager for the testing of Type B and other RAM shipping packages.
- ◆ Laboratory Space Manager for the Packaging Research Facility.
- ◆ Utilized FEA tools such as LS Dyna and ANSYS to assist in the preparation and maintaining of the analyses for project management and sponsor presentation.
- ◆ Developed the Packaging Testing Program Development and Quality Assurance Program.
- ◆ Supported Global Threat Reduction Initiative training session in Mexico City, Mexico.
- ◆ Technical lead on rare earth element supply chain investigation
- ◆ Individual contributor to various projects with mechanical engineering, FEA, and structural analysis needs.

Jacobs Engineering, Houston, TX

2008-2011

Aerospace Structural Analysis Engineer

- ◆ Structural Analysis Technical Lead engineer for the stress analysis group of the Advanced Space Suit Personal Life and Support System (PLSS).
- ◆ Responsible for all stress analysis tasks, deadlines, milestones, technical quality, and deliverables to the customer of the PLSS project.
- ◆ Coordinated the design activity schedule with the stress analysis schedule, 95-100% of all activity was kept within schedule for the last two years.
- ◆ Performed structural/stress analysis on various metallic and composite test articles, ground support, and flight hardware for various projects.
- ◆ Demonstrate through analysis the thermal protection system concept for project Orion due to reentry, pad abort, and cold soak temperatures.
- ◆ Developed, verified, and demonstrated advanced light-weight structural concepts that exploited composite materials and sandwich structures through analysis and test.
- ◆ Weekly interactions with customers, program managers, designers, analysts and NASA affiliates.
- ◆ Prepared strength and fracture assessment reports to meet project milestones or deliverables on time and ahead of schedule.

Alliant Techsystems (ATK), Salt Lake City, UT

2007-2008

Structural Analysis Engineer

- ◆ Identified key failure mechanism in ATK's small launch vehicle (SLV) and ATK's launch vehicle (ALV).
- ◆ Developed finite element analysis procedures and processes to be used in launch vehicle structural/stress analysis.
- ◆ Weekly interactions with the Systems Engineering and Integration engineers and the Physical Integration engineers.
- ◆ Defined launch vehicle models, analysis procedures, and design analysis reports to validate requirements and design.

Academic Research Experience

University of Florida (UF), Gainesville, FL

2004-2007

Master's and Doctoral Research Assistant

- ◆ Identified key failure mechanisms in the Integrated Thermal Protection System's sandwich (ITPS) construction and developed analysis procedures that can be used in the design of the ITPS.
- ◆ Developed new methods or modified available methods to perform thermo-mechanical structural analysis of a full thermal protection system of use on a Crew Exploration Vehicle (CEV).
- ◆ Weekly interactions with Constellations University Institutes Project (CUIP) researchers.
- ◆ Worked in cooperation with UF optimization team with weekly design meetings in coordination with NASA Langley Research Center.

Conference Proceedings

1. Martinez, O.A., Blessinger, C.B., "ORNL Special Form Testing of Sealed Source Encapsulations", *Proceedings of the 49th ASME Pressure Vessel and Piping Conference*, ASME PVP2015-46003, Boston, MA, July 19-23, 2015.
2. Feldman, M.R., Ludwig, S.B., Martinez, O.A., "Recent Radioactive Material Package Testing Experiences at Oak Ridge National Laboratory" *Proceedings of the 17th International Symposium on the Packaging and Transportation of Radioactive Materials PATRAM 2013*, San Francisco, CA, August 18-23, 2013.
3. Sharma, A., Gogu, C., Martinez, O., Sankar, B., Haftka, R., "Multi-Fidelity Design of an Integrated Thermal Protection System for Spacecraft Reentry" *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Schaumburg, IL, April 2008, AIAA 2008-2062.
4. Martinez, O., Sankar, B.V., Haftka, R.T., "Thermal Response Analysis of an Integral Thermal Protection System for Future Space Vehicles," *ASME International Mechanical Engineering Congress and Exposition*, Chicago, IL, November 2006, IMECE2006-14522.
5. Martinez, O., Sankar, B.V., Haftka, R.T., "Thermal Analysis of a Corrugated Core Sandwich Panel for Integral Thermal Protection System," *American Society of Composites 21st Annual Technical Conference*, Dearborn, MI, September 2006, paper no. 219.
6. Martinez, C; Stopka, C; Martinez, O. Low-Intensity Exercise Therapy for Women with Peripheral Arterial Disease....Is it Beneficial, and Can it be Performed in Community Based Clinics and Fitness Centers? NCPERID Annual Conference, Research Poster presentation, Reston, VA, July 18, 2005; published in NCPERID's Advocate, Volume 32, #1, Winter, 2006, p. 9.
7. Bapanapalli, S.K., Martinez, O., Sankar, B.V., Haftka, R.T., Blosser, M.L., "Analysis and Design of Corrugated-Core Sandwich Panels for Thermal Protection Systems of Space Vehicles," *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, RI, May 2006, AIAA 2006-1942.
8. Martinez, O., Bapanapalli, S.K., Sankar, B.V., Haftka, R., Blosser, M.L., "Micromechanical Analysis of a Composite Truss Core Sandwich Panel for Integral Thermal Protection Systems," *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, RI, May 2006, AIAA 2006-1876.
9. Martinez, O., Bapanapalli, S.K., Sankar, B.V., Haftka, R.T., "Analysis of a Corrugated Core Sandwich Structure for Integral Thermal Protection System," *ASME International Mechanical Engineering Congress and Exposition*, Orlando, FL, November 2005, IMECE2005-82822.

Publications

1. Martinez, O., Sankar, B.V., Haftka, R., Blosser, M.L. (2012), "Two-Dimensional Orthotropic Plate Analysis of an Integral Thermal Protection System," *AIAA Journal*, 50(2), 387-398.
2. Martinez, O., Sharma, A., Sankar, B.V., Haftka, R., Blosser, M.L. (2010), "Thermal Response Analysis of an Integrated Thermal Protection System for Future Space Vehicles," *AIAA Journal*, 48(1), 119-128.
3. Martinez, O., Sankar, B.V., Haftka, R., Blosser, M., Bapanapalli, S.K. (2007), "Micromechanical Analysis of a Composite Corrugated-Core Sandwich Panel for Integral Thermal Protection Systems," *AIAA Journal*, 45(9), 2323-2336.
4. Martinez, O. (2007). "Micromechanical Analysis and Design of an Integrated Thermal Protection System for Future Space Vehicles", Ph.D. Dissertation, University of Florida, Gainesville, FL.
5. Bapanapalli, S. K., Martinez, O. M., Gogu, C., Sankar, B. V., Haftka, R. T., and Blosser, M.L., "Analysis and Design of Corrugated Core Sandwich Panels for Thermal Protection Systems of Space Vehicles," *AIAA Journal*, 2006-1942, 2006.