

*Luis R. Carney, Ph.D., P.E.*

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**KNOWLEDGE & EXPERTISE**

Over twenty-eight years of experience as a materials engineer, failure analyst and accident investigator in the aviation and industrial maintenance fields culminating in the leadership of a team of eleven plus engineers and technicians.

**EMPLOYMENT HISTORY (1989 to Present)**

Materials Engineer & Technical Supervisor (Sr. rank since 2001/Team Lead since 2015)  
Naval Air Systems Command at Fleet Readiness Center Southeast  
Materials Engineering Division; Polymers & Composites, Metals & Ceramics Branches.  
Naval Air Station Jacksonville, FL 32212-0016

**2014 - Present:**

Materials Engineer, Metallurgist & President  
Southeastern Metallurgy, LLC

**DUTIES (1989 to Present @ NAVAIR)**

- ❖ Technical Supervisor of 11+ engineers & technicians (since 2015).
- ❖ Metallurgical failure analysis (700+), accident investigation, engineering problem solving of aircraft engines, systems, structures, and industrial machinery.
- ❖ Design & manufacturing of new parts, material selection, forming, forging, conventional machining, welding, heat treating, machine grinding, electric discharge machining, additive manufacturing, and shot peening.
- ❖ Polymers and composites design, selection, degradation, and investigations.
- ❖ Corrosion identification, prevention, and control.
- ❖ High temperature materials, turbine cases, blades, disks, and shafts.
- ❖ Heat, lightning strike, and fire damage evaluations.
- ❖ Write single or multiple component repair instructions and processing specifications.
- ❖ Consultant to engines, systems, and structures engineering staff in failure prevention, repair, and part design.
- ❖ Train engineering staff (300+) in materials and processes.
- ❖ Train technicians (400+) in special skills and new manufacturing techniques.

**UNIVERSITY EDUCATION**

Doctoral: Materials Science and Engineering, University of Florida, 2006.  
Master's: Materials Science and Engineering, University of Florida, 1995.  
Bachelor's: Materials Science and Engineering, University of Florida, 1991.

## TYPES OF LEGAL CASES TO DATE (Southeastern Metallurgy '14 - '17)

Mechanical Failures • Truck Suspension Failure • Aircraft Corrosion • Welding Failures (Steel & Aluminum) • Motor-Bike Fork • Welding Accident • Truck Drive Line • Tractor Fire • Condominium Railing Corrosion • Horse Trailer Corrosion • Graphite/Epoxy Composite Structural Failure • Pipe Corrosion • See Web Site "Experience" for Additional Info.

## PROFESSIONAL TRAINING ('91 to present)

- ❖ *F/A-18 Aircraft Drawing & Manufacturing Interpretation Course, FRCSE.*
- ❖ *Tescan Instruments; Field Emission Scanning Electron Microscopy.*
- ❖ *Oxford Instruments; EDS, WDS & EBSD X-Ray Microanalysis.*
- ❖ *Bearing and Gear Design Technology.*
- ❖ *Fundamentals of Arc Welding.*
- ❖ *Aircraft Accident Investigation, National Transportation Safety Board.*
- ❖ *Superalloys for Heavy Duty Aircraft Gas Turbines.*
- ❖ *Geometric Dimensioning & Tolerancing.*
- ❖ *Cold Expansion Systems Engineering, Fatigue Technologies.*
- ❖ *Scanning Electron Microscopy & X-Ray Microanalysis, Lehigh University.*
- ❖ *Jet Engine Mishap Investigation, U. S. Air Force.*
- ❖ *F-14 Aircraft Bulkhead Quality Hole Machining, NADEP Norfolk.*
- ❖ *Aircraft Composite Structure Producibility & Quality, Wichita State University.*
- ❖ *Aircraft Powerplants, FAA.*
- ❖ *Advanced Composites Training, Abaris.*

## PUBLISHING & PRESENTATIONS

- ❖ Journal Article: (W/ John J. Mecholsky, Jr.), *Relationship Between Fracture Toughness And Fracture Surface Fractal Dimension In AISI 4340 Steel*, Materials Sciences and Applications, 2013, 4, 258-267.
- ❖ Ph.D. Thesis: *Relationship Between Fracture Toughness And Fracture Surface Fractal Dimension In AISI 4340 Steel*, University of Florida, 2006.
- ❖ Presentation: *Load Flow in Multi-Stack Joints*, NAVAIR Air Vehicle Engineering Conference, 2009.
- ❖ Presentation: *Elimination of Baking Operations Following Nitric Acid Based Temper Etching*, NAVAIR Air Vehicle Engineering Conference, 2007.
- ❖ Presentation: *Failure Analysis of Turbine Engine Compressor Front Hub/Disk*, AeroMat Conference, 2004.
- ❖ Presentation: *Failure Analysis of Turbine Engine In-flight Failure*, AeroMat Conference, 2004.
- ❖ Presentation: *Tailhook Failure & Aircraft Mishap*, University of Florida Graduate Students & Faculty, 2004.
- ❖ Other Related: *Journal Article Reviewer & Advisor, Metallurgical and Materials Transactions A*, 2014-Present.



## SELECTED AWARDS

- 2016 ▶ From Materials Engineering Division Jacksonville for significantly reducing engineering investigation turn-around time, training four new engineers.
- 2015 ▶ From Materials Engineering Division Jacksonville for completing multiple high profile engineering investigations (several engine & airframe losses).
- 2012 ▶ From Commander, Naval Air Warfare Center, for support of the T-45 Hook Shank Production Restart Team.
- 2011 ▶ From Materials Engineering Division Jacksonville for skillful and professional completion of jet trainer mishap investigation involving airframe loss.
- 2010 ▶ From Materials Engineering Division Jacksonville for the performance of high-visibility failure analysis of a main landing gear trunnion and suggestions for improvement.
- 2009 ▶ From Materials Engineering Division Jacksonville for completion of numerous analyses and investigations of Navy/USAF turbofan engine turbine failures.
- 2009 ▶ From Materials Engineering Division Jacksonville for support of turboprop engine compressor blade failures.
- 2008 ▶ From Materials Engineering Division Jacksonville for failure analysis of three separate instances of air-to-air refueling hose failure.
- 2006 ▶ From Materials Engineering Division Jacksonville for completion of high visibility failure analysis a jet aircraft wing spar.
- 2006 ▶ From Program Executive Officer, Tactical Aircraft Programs for professionalism and technical expertise in the investigation of the effects of contamination on jet engine bearing damage.
- 2005 ▶ From Commanding Officer, Marine Aircraft Group 31 for outstanding response and support in rapidly inspecting several heat-damaged jet aircraft.
  
- 2000 to Present ▶ Multiple awards throughout the years from Materials Engineering Division Jacksonville and Production Supervisors for support of FRCSE plant manufacturing shop operations including machining, grinding, and shot peening.
- 2000 to Present ▶ Multiple awards throughout the years from Materials Engineering Division Jacksonville and FRCSE Production Supervisors for providing training to engineers and artisans, especially classes required to recertify in special skill areas.

## OTHER RELEVANT EXPERIENCE & TRAINING (1978-1985)

- ❖ Auto, Truck, Gas & Diesel Engine Mechanic: Various employers.
- ❖ Training: OJT & Westside Skills Center, Jacksonville, Fl.
- ❖ Awards: Placed or won Regional and State Vocational Industrial Clubs of America Mechanics competitions.

