Monument, CO • 719.375.5855 • sgd@saf-engineering.com

Sarah E. Galyon Dorman

Summary of Qualifications

- Fatigue and Fracture Mechanics Analysis
- Risk Analysis and Assessment
- Environmentally Assisted Cracking
- Bacteria Affected Corrosion
- Static and Fatigue Testing and Analysis
- Environmentally Assisted Fatigue and Crack Propagation Testing
- Program Management

Experience

October 2011-Present	SAFE Inc	Colorado Springs, CO

Contract Engineer/Site Lead

- Currently leading research effort to determine the effect of chromate primers on small scale corrosion fatigue damage in a legacy aircraft aluminum alloy
- Investigating bacterial inhibitive effects on corrosion fatigue in aluminum alloys
- Developing novel test methodologies to better mimic atmospheric corrosion conditions and their effect on fatigue
- Manage and directs multiple cadet research projects

September 2006-October 2011	S E Galyon Incorporated	Colorado Springs, CO

President/Contract Engineer-United States Air Force Academy's Center for Aircraft Structural Life Extension

- Lead effort to determine the effect of chromate primers on small scale corrosion fatigue damage in a legacy aircraft aluminum alloy
- Managed and mentored multiple cadet research teams examining corrosion effects on air craft relevant materials and in design of mechanical test fixtures
- Lead program on three dimensional crack growth in aluminum and titanium involving mixed mode I/II loading fatigue and residual strength testing
- Developed and prepared the Protocol Validation plan for the Aircraft Teardown Protocols developed at CAStLE
- Coordinated effort to select coating removal systems for use in the KC-135 teardown program and prepared the Coating Removal Protocol for the KC-135 teardown program
- Analyzed and made a determination on using the environmental severity index (ESI) to select KC-135 aircraft for teardown analysis to determine fleet structural health
- Completed failure analysis on nondestructive inspection (NDI) indications for three aircraft structural teardown programs (C-130, T-37, KC-135)

August 2004-August 2006	University of Virginia	Charlottesville, VA

Graduate Research Assistant-Masters of Science Thesis Research

- Studied the effects of corrosion prevention compounds (CPC) on fatigue life for AA7075-T6
- Compared fatigue cycles to failure for CPC coated samples, unprotected samples and perfect samples
- Studied the effects of CPC on crack growth rate for AA7075-T6

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June 2004-August 2004	Oak Ridge National Laboratory	Oak Ridge, TN

Science Undergraduate Laboratory Internships (SULI)

- Continued previous student research on spark plug degradation in natural gas engines
- Completed SEM analysis of failed spark plugs
- Determined future experiments to complete analysis of failed natural gas engine plugs plugs

May 2003-August 2003	BWXT Y-12 LLC, Oak Ridge, TN	Oak Ridge, TN

Engineering Intern

- Coordinated and planned net-shape formed ceramic analysis for research into new manufacturing methods
- Prepared and coordinated ceramic porosity analysis

Education

August 2004-August 2006	University of Virginia	Charlottesville, VA

MS-Materials Science and Engineering

- Thesis, "The Effects of CPC *on the* Initiation and Growth of Corrosion Fatigue Cracks in AA7075-T6"

August 2000-May 2004	Virginia Polytechnic Institute and State University (Virginia Tech)	Blacksburg, VA

BS-Materials Science and Engineering

Awards

Cadet Research Award for Science, Technology, Engineering and Mathematics, United States Air Force Research Awards, "The Effect of *Ralstonia Pickettii* on Corrosion Fatigue in Aluminum Alloys", 2012 – Cadet Mentor

Highly Commended Paper at 2009 International Committee on Aeronautical Fatigue Conference (ICAF 2009), "Three Dimensional Crack Growth Prediction", 2009

First Place Poster at Tri-Services Corrosion Conference Poster Session, "The Effects of CPC Coatings on the Corrosion/Fatigue Behavior of AA7075-T6"**,** 2005

Professional Affiliations

The American Chemical Society

Publications

Galyon Dorman, S.E. and Lee Y., (2011) "The Effect of Chromate Primer on Corrosion Fatigue in Aluminum Alloy 7075-T651" *Procedia Engineering*, Vol. 10, pp. 1220-1225.

Lee,Y., Galyon Dorman, S.E., Hammond, M.J., (2011) "Test Method for Determining the Effect of Chromate Primers on Fatigue Crack Growth," *Proceedings of the 2011 International Conference on Aeronautical Fatigue* (ICAF*)*, Montreal, Canada.

Galyon Dorman, S.E. and Lee, Y. (2011), "Effect of Chromate Containing Primers on Legacy Al-Zn-Mg-Cu" *Proceedings DoD Corrosion Conference*.

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Galyon Dorman, Sarah E Arunachalam, Saravanan R., Greer Jr., James M., Hammond Matthew, Fawaz, Scott A., (2010). "Three Dimensional Crack Growth: AA 2024-T351," USAF Academy TR-2009-08.

Galyon, Sarah E., Arunachalam, Saravanan R., Greer Jr., James M., Hammond, Matthew, Fawaz, Scott A. (2009). "Three dimensional crack growth prediction," *Proceedings of the 2009 International Conference on Aeronautical Fatigue (ICAF)*, Rotterdam, The Netherlands. (Paper Award)

Kelly, R., Cui, F., Galyon, S.E. (2006). "The effects of CPC Coating on the Corrosion/Fatigue Behavior of AA7075-T6," ECS Transactions, Vol. 1, Issue 9, pp. 75-85.

Galyon, S.E. (2006), "The Effects of CPC on the Initiation and Growth of Corrosion Fatigue Cracks in AA7075-T6," MS Thesis, University of Virginia, Charlottesville, VA.

Conference Proceedings

Galyon Dorman, S.E. and Lee, Y. (2011), "Effect of Chromate Containing Primers on Legacy Al-Zn-Mg-Cu" The *DoD Corrosion Conference*, La Quinta, CA.

Galyon, Sarah E., Arunachalam, Saravanan R., Greer Jr., James M., Hammond, Matthew, Fawaz, Scott A. (2009), "Three Dimensional Crack Growth Prediction," *The 2009 Aging Aircraft Conference* Kansas City, Missouri.

Galyon, Sarah E., Shoales, Gregory A., Shah, Sandeep (2009), "Coating Removal System Selection for the C/KC-135 Teardown," *The 2009 Aging Aircraft Conference*, Kansas City, Missouri.

Galyon Dorman, Sarah E., Greer Jr., James M., Chevalier, Herve, Fawaz, Scott A., Poelking, Monica (2010), "Three Dimensional Crack Growth Prediction in Titanium," *The 2010 Aircraft Airworthiness and Sustainment Conference,* Austin, TX.

Galyon Dorman, Sarah E., Lee, Yongwon, Sweeney, Deborah M., Bush, Ralph, Fawaz, Scott A., Warner, Jenifer S. (2010), "Environmental Fatigue Crack Propagation in AA 7075-T651" *The 2010 Aircraft Airworthiness and Sustainment Conference,* Austin, TX.

Galyon, S.E., Cui, F., Kelly, R.G. (2005), "The Effects of CPC Coating on the Corrosion/Fatigue Behavior of AA7075-T6," *The 9th Joint Conference on Aging Aircraft,* Atlanta, GA.

Galyon, S.E., Cui, F., Kelly, R.G. (2005), "The Effects of CPC Coating on the Corrosion/Fatigue Behavior of AA7075-T6," *The Electrochemical Society, Inc Meeting*, Los Angeles, CA.