



**Cavote Inc. DBA**

**David N. French Metallurgists**

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## **Curriculum Vitae of Rama S. Koripelli, PhD, PE**

Dr. Koripelli holds a PhD in Mechanical Engineering from the University of Nevada, Las Vegas (UNLV). He is a licensed Professional Engineer (PE) in the state of Kentucky. His dissertation was on the tensile deformation, corrosion and crack growth characterization of Ni-base superalloy for use in heat exchangers for hydrogen generation. Dr. Koripelli has over 13 years of metallurgical engineering and failure analysis experience. He has directed numerous metallurgical projects to determine the root cause of failures, assessment of components, material evaluations, and life estimation of pressure parts and high-energy piping. His areas of expertise include failure analysis, fracture mechanics, material selection, mechanical and corrosion testing. He has involved in several corrosion studies. Dr. Koripelli is a frequent writer for the POWER magazine. He has published numerous papers in the international conferences and journals. Primary projects are typically in pressure parts analysis, but Dr. Koripelli also involves in litigation projects.

### **Education/Certifications**

- PE, Professional Engineer, State of Kentucky, License #33119
- Ph.D. (Mechanical Engineering) University of Nevada, Las Vegas, NV, USA
- Master of Engineering, McNeese State University, Lake Charles, LA, USA
- B.Tech. (Mechanical Engineering) Nagarjuna University, Vijayawada, AP, India
- Diploma in Automobile Engineering, SBTET, AP, India

### **Professional Experience**

David N. French Metallurgists (DNFM), Brooks, KY, USA

**Technical Director** October 2009- Present

Managing projects from start-to-finish. Involving in business development, expansion and maintaining client relationship. Directing metallurgical projects on industrial components. Performing life and condition assessment of pressure parts. Conducting seminars on metallurgical failures in boilers. Publishing technical papers and newsletters. Supporting third party litigation projects. Evaluating destructive, non-destructive and chemical test results.

David N. French Metallurgists (DNFM), Brooks, KY, USA

**Metallurgical Engineer** January 2008 – September 2009

Metallurgical investigations of failures in fossil boiler tubes and wide variety of industrial components like shafts, springs, valves, etc. Life assessment of superheater and reheater tubes for sub-critical and super critical boilers. Condition assessments for water wall tubes.

University of Nevada, Las Vegas, (UNLV), Las Vegas, NV, USA

**Research Assistant** Summer 2005-Fall 2007

Assisting in research, working on metallurgical projects, developing techniques for specialized mechanical and corrosion testing for various materials, supervising the materials performance laboratory (MPL).

McNeese State University, Lake Charles, LA, USA

**Research Assistant** Fall 2001-Spring 2005

Assisting in research, developing instructional companions for the controls laboratory

### **Litigation Services**

1. AES Warrior Run vs. NBS, 2009-2011, Docket and date unknown.
2. Astoria Generating Co. vs. Plymouth Tube Co., 2012-2013, Docket and date unknown, File no. 348.18791.
3. Universal Linen vs. CCI, United States District Court Western District of Kentucky, Louisville Division. Civil Action No. 3:12-cv-238 JGH. Louisville, KY. July 2013.
4. Oxford Mining Company-Kentucky, LLC vs. Big Rivers Electric. Common Wealth of Kentucky, Ohio Circuit Court. Civil Action no. 12-CI-00160, July 2014.
5. Pacific Ethanol Inc vs. Indeck Power Equipment Company, Circuit Court of Cook County, Illinois County Department, Law Division Case #2015-L-6405, 2016-2020.
6. DuPont Spruance vs. John Zink Company, LLC ("John Zink"), 2020-Present.

### **Seminars**

#### **2008**

- UDC Seminar, "*Inspection Techniques & Joint Approach for Boiler Tube Failure Prevention*", Louisville, KY. June 2008

#### **2009**

- UDC Seminar, "*Joint Approach for Boiler Tube Failure Prevention*", Louisville, KY. June 2009

#### **2010**

- UDC Seminar (LV2), "*Joint Approach for Boiler Tube Failure Prevention*", Shepherdsville, KY. June 2010
- Neundorfer – "*Boiler MACT Summit*", Willoughby, OH. November 2010

## **2011**

- UDC Seminar, "*Joint Approach for Boiler Tube Failure Prevention*", Shepherdsville, KY. June 2011

## **2012**

- UDC Seminar, "*Joint Approach for Boiler Tube Failure Prevention*", Shepherdsville, KY. June 12-14
- "*KCPL Weld Inspection Techniques Seminar*", Kansas City, MO. December 12, 2012

## **2013**

- UDC Seminar, "*Joint Approach for Boiler Tube Failure Prevention*", Shepherdsville, KY. June 11-13
- KCPL Pine Oaks Seminar, "*Flow-Accelerated Corrosion*", Kansas City, MO. July 8-12, 2013
- KCPL Pine Oaks Seminar, "*Flow-Accelerated Corrosion and Weld Inspection*", Kansas City, MO. Dec. 3-5, 2013

## **2014**

- 19<sup>th</sup> Annual All Users Conference January 7-9, 2014 Key West, FL, "*Effects of Load Cycling on Boiler Pressure Parts*"
- ASME 2014 Power Conference, "*Issues Related to Creep-Strength-Enhanced Ferritic Steels*", Baltimore, Maryland. July 2014
- UDC Seminar, "*Boiler Inspection Techniques*", Shepherdsville, KY. June 3-5, 2014
- DTE Energy, SWARM, "*Corrosion Issues in Biomass Plants*", Bakersfield, CA. March 2014
- "*X-Ray Microanalysis*", Whitaker Laboratory (Lehigh University) Bethlehem, PA June 2014

## **2015**

- Boiler Inspection Techniques & Tube Failure Mechanisms June 2-4, 2015 Shepherdsville, KY
- Electric Power Conference, "*Metallurgical Aspects of Load Cycling on Pressure Parts*", Chicago, IL. April 2015
- Coal Gen. Conference, "*Issues Related to Creep-Strength-Enhanced Ferritic Steels*", Las Vegas, NV. December 8-10, 2015

## **2016**

- 21<sup>st</sup> Annual All Users Conference, "*Effects of Fuel Blending, Switching and Staged Combustion*" January 5-7, 2016 Key West, FL
- "*Joint Approach to Boiler Tube Failure Prevention*", Minnkota Power, Bismarck State College: Bismarck, ND May 24-26, 2016
- UDC Seminar "*Joint Approach to Boiler Tube Failure Prevention*", Shepherdsville, KY. June 7-9, 2016

- Storm Technologies Conference. "*Large Electric Utility Boiler Combustion and Performance Optimization*", Hilton Head, SC July 19-21, 2016
- DTE Stockton, SWARM, "*Corrosion Issues in Biomass Plants*", Stockton, CA. September 2016

## **2017**

- 22<sup>nd</sup> Annual All Users Conference, "*Leading failure Mechanisms*", January 3-5, 2017, Key West, FL

## **2018**

- Storm Technologies Seminar, February 13-15, 2018, Seven Springs, PA "*Large Electric Utility Boiler Combustion and Performance Optimization*"
- NACE: Corrosion Conference 2018, "*TEG-163x: Waterside Modes of Failure in Utility Boilers*", Phoenix AZ April 15-19, 2018
- CIBO: Boiler Operations, Maintenance & Performance Conference, May 14-16, 2018, Hershey PA, "*Tube/Pipe Testing and Analysis*"
- Impact of Cycling Power Conference, June 12-13, 2018, Rogers AR "*Metallurgical Aspects of Load Cycling on Pressure Parts*"

## **2019**

- UDC Seminar "*Joint Approach to Boiler Tube Failure Prevention*", The Paroquet Spring Conference Center, Shepherdsville, KY. June 4-6, 2019
- Babcock Power Conference "*Ohio Valley Coal Seminar: Fireside Corrosion and Tube Failures*", Pittsburg, PA. August 1-2, 2019

## **2020**

- 25<sup>th</sup> Annual Boiler Reliability Users' Group Conference "*Asset Health and Future of Fossil-Fired Boilers in Dynamic Dispatch Conditions*", January 7-9, 2020, The Pier House, Key West, FL

## **Publications**

Rama S. Koripelli, Joydeep Pal, Ajit K. Roy "***Tensile Properties and Fracture Toughness of Super Alloys for Hydrogen Generation***" MS&T 06 October 15-October 17, 2006, Cincinnati, OH, USA

Rama S. Koripelli "***Use of Alloy-22 for Nuclear Hydrogen Generation***" ANS Student Conference, March 29- March 31, 2007, Corvallis, OR, USA

Rama S. Koripelli, Joydeep Pal, Ajit K. Roy "***The Corrosion Behavior of Nickel-base Austenitic Alloys for Nuclear Hydrogen Generation***" MRS 2006 Spring Proceedings, SFO, CA, USA Paper # 0929-II05-06.

Rama S. Koripelli, Ajit K. Roy ***“Tensile Deformation of Alloy-22 at Ambient and Elevated Temperatures”*** ASME PVP-2007 Conference, July 22 – July 26, 2007, San Antonio, TX, USA

Rama S. Koripelli, Ajit K. Roy and Joydeep Pal ***“Tensile Deformation of a Nickel-Base Superalloy for Application in Hydrogen Generation”*** International Journal of Hydrogen Energy, Volume 33 Issue 3, February 2008, Pages 945-952

<https://www.sciencedirect.com/science/article/pii/S0360319907007057>

Rama S. Koripelli, David C. Crowe, David N. French and Jonathan Brand ***“Role of Fireside Corrosion on Boiler Tube Failures”*** Electric Power 2009, EP09 Session 12C, May 2009, Rosemont, IL.

Rama S. Koripelli, David N. French and Jonathan Brand ***“Stress-Corrosion-Cracking in Carbon, Low-Alloy and Stainless Steels”*** Power Gen 2010, December 14-16, 2010, Orange County Convention Center, Orlando, FL.

Rama S. Koripelli, PhD ***“The Role of Fireside Corrosion on Boiler Tube Failures I”***, Power Magazine April 1, 2010

<http://www.powermag.com/the-role-of-fireside-corrosion-on-boiler-tube-failures-part-i/>

Rama S. Koripelli, PhD ***“The Role of Fireside Corrosion on Boiler Tube Failures II”***, Power Magazine June 1, 2010

<http://www.powermag.com/the-role-of-fireside-corrosion-on-boiler-tube-failures-part-ii/>

Rama S. Koripelli and David N. French ***“Issues Related to Creep-Strength-Enhanced Ferritic (CSEF) Steels”*** ASME Power Conference 2014, Paper #2014-32027, July 28-31, 2014, Baltimore, MD.

<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=37983F95261A6393E4B18483C3FF5B32?doi=10.1.1.654.7491&rep=rep1&type=pdf>

Rama S. Koripelli, PhD ***“Metallurgical Aspects of Secondary Combustion on Boiler Pressure Parts”***, Power Magazine July 1, 2015

<http://www.powermag.com/metallurgical-aspects-of-secondary-combustion-on-boiler-pressure-parts/>

Rama S. Koripelli, PhD ***“Load Cycling and Boiler Metals: How to Save Your Power Plant”***, Power Magazine November 1, 2015

<http://www.powermag.com/load-cycling-and-boiler-metals-how-to-save-your-power-plant/>

Rama S. Koripelli, PhD “**Understanding and Mitigating Metallurgical Effects of Coal Blending and Switching**”, Power Magazine July 1, 2016

<http://www.powermag.com/understanding-mitigating-metallurgical-effects-coal-blending-switching/>

Rama S. Koripelli, PhD, PE, David N. French, ScD “**Signs of Aging in Boilers**”, Power Magazine January 2018

<http://www.powermag.com/signs-of-aging-in-boilers/>

Rama S. Koripelli, PhD, PE “**How to Alleviate Waterside Issues in Boilers and HRSGs**”, Power Magazine February 2019

<https://www.powermag.com/how-to-alleviate-waterside-issues-in-boilers-and-hrsgs/>

### **Software Skills**

AutoCAD, Pro/Engineer, SolidWorks, HyperMesh, HyperViews, LS DYNA, MathCAD, Matlab, LabView, Data Acquisition (DAQ), and Microsoft Office.

### **Dissertation**

*“Tensile Deformation, Corrosion and Crack Growth Characterization of Nickel-Base Alloys”.*

This investigation is aimed at characterizing the deformation at elevated temperatures under tensile loading, corrosion characterization in the presence of H<sub>2</sub>SO<sub>4</sub> and evaluation of crack propagation of candidate structural materials (Alloy-22) to be used in heat exchangers for nuclear hydrogen generation. Defects, microstructure, and failure analysis was analyzed using TEM, OM, and SEM.

### **Standards and Operational Skills**

ASME, AWS, ASTM, API, NACE, Instron, MTS, Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM), and Optical Microscopy