



Announcing the 2023 *Journal of Failure Analysis and Prevention* Editor's Choice Awards

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Every year I have the privilege of announcing the six Editor's Choice Award papers, one of which will be selected as the Best Paper from the *Journal of Failure Analysis and Prevention (JFAP)*. This year was particularly challenging with outstanding articles in every issue of the journal. The *JFAP* editorial team voted on selections for the Editor's Choice papers and the following six articles were selected (listed in order of publication date):

Failure of Steel Shafts Due to Improper Repair Welding

Brett A. Miller, Rimmel O. Taylor, Phillip D. Swartzentruber, and Brian P. Kelly
J Fail. Anal. and Preven. **23**(2), 894–909 (2023)
<https://doi.org/10.1007/s11668-023-01629-4>

Analysis of Wood Bonding Failures that Initiated Before Adhesive Solidification: Air Fingers and Cavitation

Dirk Lukowsky and Hoa Nguyen
J Fail. Anal. and Preven. **23**(3), 1059–1067 (2023)
<https://doi.org/10.1007/s11668-023-01646-3>

Wire Rope Damage Detection Based on Magnetic Leakage and Visible Light

Quankun Chen, Juwei Zhang, and Qiang Ye
J Fail. Anal. and Preven. **23**(3), 1275–1287 (2023)
<https://doi.org/10.1007/s11668-023-01682-z>



Fan Blade Fatigue Fractures in CFM56-7B Engines

Matthew R. Fox, William R. Rossey Jr., and Michel Raguet
J Fail. Anal. and Preven. **23**(4), 1438–1451 (2023)
<https://doi.org/10.1007/s11668-023-01702-y>

The Synergy Between Corrosion and Fatigue: Failure Analysis of an Aerator and a Cooling Tower

Luciano da Rocha Magalhães, Rodrigo Freitas da Silva Alvarenga, Flávio Augusto Coelho Resende, Leonardo Rosa Ribeiro da Silva, Waldek Wladimir Bose Filho, and Sinésio Domingues Franco
J Fail. Anal. and Preven. **23**(4), 1803–1819 (2023)
<https://doi.org/10.1007/s11668-023-01729-1>

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Testing and Analysis on the Dynamic Loosening of Jack Bolt Nuts Compared with Heavy Hex Nuts

Daniel P. Hess

J Fail. Anal. and Preven. **23**(6), 2653–2660 (2023)

<https://doi.org/10.1007/s11668-023-01809-2>

These six articles cover a range of materials, techniques, and topics. They are excellent representations of the diversity that is available in any given issue of *JFAP*, and what makes the field of failure analysis and prevention an interesting and challenging topic for scientists and engineers.

The first manuscript in the Editor's Choice collection describes the failure analysis concerns associated with steel shafts that are repaired via welding. This manuscript gives an outstanding overview of weld repair methods, and it provides readers with a varied selection of failure analysis case studies to review.

The second article in the collection examines entirely different materials from the others and highlights the variety of work published in *JFAP*. This article examines joints in wooden structures joined with a polymer-based adhesive. The mechanisms of fracture are examined when air fingers and cavitation occur in joints where the bond line is open while the adhesive is still viscous and not fully cured.

The third paper in the Editor's Choice set from 2023 discusses two established non-destructive inspection (NDI) techniques applied to wire ropes. The authors describe data analysis techniques that enhance the sensitivity of both techniques, and then apply a neural network to efficiently process and present the results. This paper is a great example of applying computational methods to practical failure prevention.

An important case history paper reviewing fan blade fracture was contributed in 2023 and is included in the Editor's Choice collection. This paper is a succinct summary of an NTSB investigation into a Ti-alloy fan blade fracture. The article goes through the rigorous laboratory analysis of the failure, analysis of the in-service contact stresses, and makes recommendations to prevent future failures of these blades through proper inspection and replacement.

The fifth article included in the Editor's Choice collection is about two well-known bad actors in failure analysis: corrosion and fatigue. The authors present two case studies where different types of corrosion and fatigue combine to cause premature failures in both an aerator for a wastewater treatment plant and a cooling tower.

The sixth paper in the Editor's Choice set from 2023 presents an interesting comparison of fastener performance under dynamic loading conditions. Jack bolt nuts and heavy hex nuts are compared in this work to prove that the jack bolt nuts are more effective and explain to readers why that is the case.

We, the *JFAP* editorial and publication team, hope you will find the selections described here interesting. These selected manuscripts will be made available as "Free Access" through the Editor's Choice link on the *JFAP* website at <https://www.springer.com/journal/11668/updates/17308862>, as well as through the journal's page on Springer.com. There is a charge to authors or their institutions for Open Access, but for papers selected for this honor, this benefit is free. The team at *JFAP* hopes this access increases visibility and access for the outstanding work reported in each.

The editorial team at *JFAP* wants to express our gratitude to all of the authors who submitted their work to our journal and shared their research with our readers. It is equally important to acknowledge the efforts of our technical reviewers, all of whom volunteer their time to support the mission of the journal and maintain the high quality standards. Last, but far from least, the editorial team would like to express our utmost appreciation to the team members at ASM International and Springer who are responsible for all of the logistical and organizational tasks that go into publishing *JFAP*.

Congratulations to the authors of the manuscripts selected for inclusion in the Editor's Choice collection, and to all of the authors whose work appeared in *JFAP* in 2023. We hope to have the opportunity to work with you again in the future, and to continue to improve and grow *JFAP* in 2024.

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