

# HALLIWELL



## DR LIN SUN BEng, PhD

SENIOR ASSOCIATE

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### SPECIALTIES

- Escapes of Fluids
- Metallurgy
- Renewable Energy
- Mechanical Engineering
- Marine Engineering
- Power Generation
- Materials Failure
- Personal Injury
- Litigation Experience

### BIOGRAPHY

Lin holds a Bachelor's degree in Materials Science and Engineering and a PhD in Physical Metallurgy, both from the University of Sheffield. He also earned a Postgraduate Certificate in Mechanical Engineering, specialising in the Design of Rotating Machines, from Cranfield University.

With over a decade of experience, Lin is a highly skilled forensic engineer specialising in failure investigation and expert witness services for the insurance, legal, and risk management professions. He has investigated the root causes of complex mechanical and material failures in more than 300 forensic cases across diverse industries.

Lin has deep expertise in power generation assets, energy infrastructure, and industrial machinery, leading to assignments across Europe, Southeast Asia, the Middle East, and North Africa. He has also conducted numerous investigations into various escapes of fluids (water, gas, oil etc.) in commercial and domestic settings, as well as personal injury cases linked to mechanical and material failures, particularly in construction, manufacturing and transportation.

As an expert witness, Lin has provided technical expertise in litigation and arbitration cases worldwide. He has provided written and oral evidence in court proceedings in the UK, Sweden, Spain, South Africa, Saudi Arabia and Singapore, addressing issues such as fatigue fracturing, stress corrosion cracking, and material degradation.

Before joining Halliwell Forensics in 2025, Lin worked as a Forensic Engineer at Hawkins & Associates for seven years. Prior to that, he was Lead Engineer at GE Power (2015–2017), where he led R&D projects and forensic failure analyses. He also worked as a Research Scientist at the University of Cambridge (2013–2015), developing advanced materials for jet engines with Rolls-Royce, and as a Project Lead at the Advanced Forming Research Centre in Scotland, driving innovations in materials and manufacturing technologies.

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#### QUALIFICATIONS

BEng – Materials Science & Engineering, University of Sheffield

PhD – Physical Metallurgy, University of Sheffield

PGCert – Desing of Rotating Machines, Cranford University

Bond Salon Civil Law Expert Witness Certificate, Cardiff University

#### PROFESSIONAL EXPERIENCE

- Halliwell Forensics, Senior Associate
- Hawkins & Associates, Associate
- GE Power, Lead Engineer
- University of Cambridge, Research Associate
- Advanced Forming Research Centre, Project Lead

#### REPRESENTATIVE ASSIGNMENTS

##### Investigate Complex Mechanical and Material Failures

Cross diverse industries for the loss adjusting, insurance, legal, and risk management professions; involving:

- Power generation assets and energy infrastructure, including gas turbines, steam turbines, reciprocating engines, pumps, compressors, gearboxes, bearings, pressure vessels, heat exchangers, fluid pipelines, chemical processing plants.
- Materials failures due to a wide range of mechanisms such as low/high cycle and thermal fatigue, creep, embrittlement, environment assisted degradation, corrosion, wear, erosion, manufacturing and welding defects.
- Industrial and construction machinery, such as furnaces, rolling mills, CNC machines, lathes, cranes, lift; various mechanical services, such as heating, ventilation and air conditioning (HVAC) systems, in built environment.
- Personal injuries arising from mechanical and material failures.
- Escapes of water /oil / other fluids in commercial and domestic environments.

##### Global Materials and Processes Engineering

- Lead internal and collaborative R&D projects to develop and implant new materials, special processes, welding technologies, non-destructive inspection methods etc to support new product and technology development for gas and steam turbines, boilers, and pressure vessels.
- Provide materials and welding related support in areas of Design and Service Engineering, Test and Validation, Specifications, Supplier and Product Qualification.

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- Conduct forensic failure investigations and provided metallurgical expertise in root cause analysis for various GE businesses, including Thermal Power, Renewable Energy, Oil & Gas, involving a wide range of GE/ALSTOM and third-party products.

#### Research Scientist

- Lead collaborative R&D activities among UK university technology centres and industrial partners.
- Design and develop novel materials and special processes for mechanical transmission systems in gas turbine jet engines with Rolls-Royce.
- Investigate bearing steel failures and improve material technologies with SKF.
- Develop and test high strength steels resistant to hydrogen embrittlement for subsea applications with BP.

#### Technical Lead of the Materials Characterization

- In charge of delivering government and privately funded R&D projects to multiple industrial partners in the aerospace / defence sector; involving the development of various metals manufacturing and joining / welding technologies.