

Naresh J. Kar

PhD, PE, Fellow ASM, Fellow ACFE
Senior Managing Consultant



Dr. Kar is a Senior Managing Consultant and metallurgical engineer at Engineering Systems Inc. (ESi) in the Materials Practice and is a licensed Professional Engineer in the state of California. He is experienced in metallurgical/corrosion/wear/mechanical failures, fracture and fatigue, patent infringement, surface techniques, and product development. Dr. Kar's legal experience is in the areas of automotive component failures, metal and plastic plumbing/piping failures, tire failures, medical device failures, chairs, industrial hardware failures, construction defects, bicycle accidents, paint analysis, gas and propane explosions, and food contamination issues. He has provided testimony in matters pending before both state and federal courts with over 200 depositions, 40 trials, and jury verdicts.

Education

PhD, Materials Science & Engineering, Mechanical Engineering (Minor), Business Administration (Minor). University of California, Berkeley. 1979

MS, Materials Science and Engineering. University of California, Berkeley. 1976

BS, Metallurgical Engineering. Indian Institute of Technology. 1974

Licenses & Certifications

- State of California P.E. License MTE1738

Positions Held

Engineering Systems Inc., Santa Ana, California

- Senior Managing Consultant, 2022 – Present
- Laboratory Manager, 2022 – 2025

Kars' Advanced Materials, Inc., Anaheim, California

- Vice President and Principal, 1988 – 2022

Smith International, Irvine, California

- Manager, Advanced Materials Engineering, 1982 – 1989

Contact Information

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ESi Santa Ana

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Santa Ana, CA 92705

Areas of Specialization

- Product Failure
- Product Liability
- Product Development Patent Infringement Testing
- Metallurgical/Corrosion/Wear/ Mechanical Failures
- Fracture and Fatigue
- Surface Techniques
- Corrosion
- Wear of Materials
- Automotive Component Failures
- Metal and Plastic Plumbing/Piping Failures
- Medical Device Failures
- Industrial Hardware Failure
- Paint and Stucco Failures
- Construction Defect Claims
- Food Contamination
- Glass Failures and Fractures
- Wine Bottles
- Windshields and Canopies

Anamet Laboratories, Berkeley, California

- Senior Metallurgist, 1979 – 1982

University of California, Berkeley, Berkeley, California

- AMMRC Department of the Army, Post-Doctoral Research Fellow, 1978-1979

Lawrence Berkeley Labs, Berkeley, California

- Research Scientist, 1974 – 1978

Independent Materials Consultant/Expert Witness, California

- Consultant, 1982 – Present

Professional Affiliations/Honors

ASM International

- Elected Fellow of ASM International, 1989 (Formerly American Society for Metals). One of 51 people worldwide bestowed this honor in 1989
- Chairman, American Society for Metals (ASM International) Orange County Chapter, 1988 – 1989
- Vice-Chairman, American Society for Metals (ASM International) Orange County Chapter, Secretary and Executive Committee Member, 1982 – 1988
- Executive Member, West Coast Liaison Committee, ASM International, Metals Park Ohio, 1983 – 1987
- Technical Chairman, Westec (ASM International), 1988

ASM International Teaching & Conference Experience

- Organized major technical conference with over 20 technical sessions. Laser Processing of Materials, 1989, 1990, 1991, 1993
- Organized and taught industrial courses on Metallurgy, Heat treating and Non-Ferrous materials, plastics, rubbers through ASM S. California Chapters, 1989-1993
- Taught major courses for ASM International to automotive/aerospace engineers. Also presented seminars in Europe and India, 1991, 1992
- Failure Analysis of Aerospace Materials, 1991 Introduction to Failure Analysis, 1992 Taught educational courses on failure analysis for ASM International to automotive and aerospace engineers and scientists.

Petroleum Engineer International

- Winner, Special Meritorious Award for Engineering Innovation, Petroleum Engineer International, SPE, 1989

Metals Engineering Institute

- Adjunct Faculty Instructor, Metals Engineering Institute, Ohio. Forensic Failure Analysis in Support of Product Liability Claims

American College of Forensics Examiners

- Board Certified Diplomate & Fellow, ACFE

Publications

“Technical presentation - National. Assoc of Subro Professionals S. Cal,” Over 3000 proprietary technical reports, June 2008.

“Interrelationships between thermal history and mechanical properties of a secondary hardening steel”, **Kar Naresh J.**, Lawrence Berkeley National Lab., Berkeley, CA, US Energy Research and Development Administration, Report No. LBL- 5449, December 1976.

“The role of microstructures on the mechanical properties and two-body abrasive wear resistance of steels”, PhD. thesis, University of California, Berkeley, June 1979.

“Modified 43XX steels for high toughness”, **N.J. Kar**, V.F. Zackay and E.R. Parker, AMMRC TR 80-20, Department of Material Science and Mineral Engineering, USC, Berkeley, CA, April 1980.

“Abrasive Wear of High Strength Steels”, published in ASM symposium “Wear and Fracture Prevention”, American Society for Metals, January 1, 1981.

“Investigation of the role of microstructures on the two-body abrasive wear resistance of steels”, published in the proceedings of the “Third International Conference on Wear of Materials”, American Society for Mechanical Engineers, 1981.

“Combatting wear the laboratory versus oil field application”, Saesky, W J, **Kar, N J**, ASME technical publication, 1983 ETCE conference, Houston, TX, January 1, 1983.

“Laser Post Processing of Hypersonic Flame Sprayed Coatings”, published by the Welding Institute, England; also presented at the Twelfth International Thermal Spray Conference, London, England, June 1989.

“Laser Processing of Materials”, ASM/AIME Annual meeting - MEI technical course, Indianapolis, September 1989.

“Increased Wear and Erosion Resistance of Rock Bits by Laser Applied Coatings”, Drilling Technology Symposium, Petroleum Division, ASME publication 1990.

“Ultrahard Laser Coatings on Rock Bit Cutters for Wear Resistance”, 1990 IADC/SPE conference, Society for Petroleum Engineers publication 1990-1991.

Metallurgical characteristics of laser cut aerospace alloys”, **Naresh J. Kar** and Leonard Migliore, presented at the International Congress on Applications of Lasers & Electro-Optics, Proceedings of the Laser Materials Processing Conference, Boston, 1990. DOI: 10.2351/1.5058362.

“Laser Cutting of Aerospace Alloys” paper published by LIA/ICALEO, Laser Institute of America, 1991

“Laser Processing of Materials”, ASM-Metals Engineering Institute technical course, San Diego, November 1991

“Laser Cutting and Machining of Aerospace Alloys”, **N.J. Kar** and L. Migliore, technical presentation, US AMADA, Buena Park, 1992

“Introduction to Failure Analysis”, ASM-Metals Engineering Institute technical course, Los Angeles, May 1992

Authored over 2000 proprietary technical reports (since 1979) for industrial and legal clients related to product failure analysis, insurance claims, and industrial product / process development.

Presentations

“Abrasive Wear of WC-Co hard metals”, **N.J. Kar**, presented at the AIME Annual Meeting, Los Angeles, Feb. 1984.

“Welding, Cladding and Heat Treating using Lasers”, **N.J. Kar**, presented at AWS/ASM joint technical meeting, Fullerton, March 1985.

“Laser Surface Heat Treating of Materials”, **N.J. Kar**, presented at Westec, Los Angeles, March 1987.

“Laser Processing of Materials”, **N.J. Kar**, ASM-MEI technical course, Los Angeles, March 1989.

“Laser Processing of Rock-Bit Cutters”, **N.J. Kar**, presented at the ETCE Conference, ASME, Petroleum Division, Houston, January 1989.

“Recent Developments in Wear Resistant Steels”, **N.J. Kar**, presented at Westec, Los Angeles, March 1984.

“Recent Advances in Laser Processing of Materials in the USA”, **N.J. Kar**, presented through the International Thermal Spray Committee, Fraunhofer Laser Institute, Aachen, West Germany, 1989.

“Metallurgical Characteristics of Laser Cut Aerospace Alloys”, **N.J. Kar**, presented at the International Conference on Lasers and Electron Optics Boston, 1990.

“Failure Analysis of Aerospace Materials”, **N.J. Kar**, Aerospace Materials Conference, Aeromat Long Beach, May 1991.

“Laser Cutting and Machining of Aerospace Alloys”, **N.J. Kar** and L. Migliore, technical presentation, US AMADA, Buena Park, 1992.

“Investigation of Isothermal Transformations in Secondary Hardening Steels”, **N.J. Kar**, presented at the TMS-AIME Fall meeting, Chicago, Illinois, October 1977.

“Mechanical Properties of AISI 4340, 4350 steels modified with aluminum and silicon”, **N.J. Kar**, presented at the ASM/AIME Annual meeting, Denver, Colorado, February 1978.

“Investigation of the role of microstructure on the abrasive wear and mechanical properties of secondary hardening steels”, **N.J. Kar**, presented at the AIME Annual meeting, New Orleans, February 1979.

“Design of Wear-resistant steels”, **N.J. Kar**, presented at the ASM/AIME Winter meeting, Las Vegas, February 1980.

United States Patents

Dual Squeeze Seal Gland, U.S. Patent No.: 4,429,854, February 1984.

Hermetically Welded Belleville Seal for Rock Bits, U.S. Patent No.: 4,560,175, December 1985.

Hermetically Welded Belleville Seal for Rock Bits, U.S. Patent No.: 4,632,401, December 1986.

Copper-Based Spinodal Alloy Bearings", U.S. Patent No.: 4,641,976, February 1987.

Cast Steel Rock Bit Cutter Cones having Metallurgically Bonded Cutter Inserts, and Process for Making the Same, U.S. Patent No.: 4,683,781, August 1987.

Process for Hardening Drilling Bit Cones having Hard Cutter Inserts placed therein, U.S. Patent No.: 4,708,752, November 1987.

Process for Laser Hardfacing Drill Bit Cones having Hard Cutter Inserts, U.S. Patent No.: 4,781,770, November 1988.

Hardfacing for Milled Tooth Rock Bits, U.S. Patent No.: 4,836,307, June 1989.

Rock Bit Insert, U.S. Patent No.: 4,869,329, September 1989.

Cast Steel Rock Bit Cutter Cones with Metallurgically Bonded Inserts, U.S. Patent No.: 4,907,665., March 1990.

Hardfacing for Milled Tooth Rock Bits, U.S. Patent No.: 4,944,774, July 1990.

Six patents pending.