

Dr. Zafarullah Khan

EDUCATIONAL QUALIFICATIONS

- PhD (1985)** – Metallurgical Engineering, University of Illinois at Urbana-Champaign
Illinois, USA
- MS (1978)** – Metallurgical Engineering, University of Illinois at Urbana-Champaign
Illinois, USA
- BS (1973)** – Metallurgical Engineering, Dawood College of Engineering
University of Karachi, Karachi, Pakistan

WORK EXPERIENCE

- Associate Professor** - Department of Mechanical Engineering
(1997-present) King Fahd University of Petroleum & Minerals
Dhahran, Saudi Arabia
- Assistant Professor** - Department of Mechanical Engineering
(1987-1996) King Fahd University of Petroleum & Minerals
Dhahran, Saudi Arabia
- Research Associate** - Department of Metallurgical Engineering
(1985-1987) University of Illinois at Urbana-Champaign
Illinois, USA
- Research Assistant** - Department of Metallurgical Engineering
(1976-1985) University of Illinois at Urbana-Champaign
Illinois, USA
- Teaching Assistant**- Department of Metallurgical Engineering
(1983-1985) University of Illinois at Urbana-Champaign
Illinois, USA
- Assistant Manager** - Peoples Steel Mills
(1974-1976) Karachi, Pakistan
- Trainee-Engineer** - Nippon Stainless Steels Co. Nigata-ken, Japan
(1973-1974)

RESEARCH EXPERIENCE

- **Funded Projects**

- **Co-Investigator:** Natural and Accelerated Weathering Effects on Tensile and Impact Properties of CPVC Pipe Material
Funding Agency: **KFUPM**. Funded Amount: \$ **77,000**

- **Principal Investigator and Project Manager:** Effect of Environmental Conditions on the Performance of vinyl ester and epoxy based glass fiber reinforced thermo set pipes. (2004-2010)
Funding Agency: **SaudiAramco.** Funded Amount: **\$ 467,000**

- **Co-investigator:** Temperature and Frequency Effects on the crack Propagation in CPVC and HDPE pipe joints. (2002-2004)
Funding Agency: **Saudi Basic Ind. Corp.** Funded Amount: **\$ 18,000**

- **Principal Investigator:** Weld line effects on the Fatigue Crack Propagation in CPVC pipe fittings (1999-2001)
Funding Agency: **SaudiAramco** Funded Amount: **\$ 124,000**

- **Co-investigator:** Evaluation of Dead-leg phenomenon in large diameter oil line-pipe (2002-2005)
Funding Agency: **SaudiAramco** Funded Amount: **\$ 156,000**

- **Principal Investigator:** Metallurgical Evaluation for remaining creep life assessments of boiler super heater and re-heater tubes. (1997)
Funding Agency: **Petro-chemia Company** Funded Amount: **\$ 7000**

- **Co-investigator** The Fatigue Resistance of Thin Gauge Automotive Weldments, Phases V, VI, and VII. (1985-1987)
Funding Agency: **General Motors Corp.** Funded Amount: **\$ 200,000**

- **Co-investigator:** The Fatigue Resistance of Ti-6Al-4V Coated Sheet Material, Phase I, and II (1985-1987)
Funding Agency: **Union Carbide Corp.** Funded Amount: **\$ 30,000**

- **Co-investigator:** The Fatigue Resistance of Saddle Joints, (1998)
Funding Agency: **General Motors Corp.** Funded Amount: **\$ 35,000**

- **Director of Advanced Materials Science Laboratory (1987-present)**
 - **As the director of the Advanced Materials Science Laboratory (AMSL) have developed state of the art facilities for conducting a wide spectrum of studies on fatigue, creep, impact, and environmental degradation of metallic, polymeric, and composite materials.**

 - **The AMSL facility houses two 100-kN Instron dynamic material test systems, one 50-kN Instron static test system, one Dynatup 9025G**

instrumented drop weight impact test system, one ATS creep testing machine, two Q-panel Xe3-HS UV exposure test chambers, and several in-house built material testing machines and assorted test fixtures.

- **MS and PhD Theses Advising**

- Has supervised, co-supervised 10 MS thesis students.
- Has been on thesis committees of over 20 MS and PhD students.

TEACHING EXPERIENCE

- 20 years of teaching experience at both undergraduate and graduate levels.

Has taught courses such:

- Materials Science (sophomore),
- Materials Science for ME (sophomore),
- Corrosion Engineering (senior),
- Mechanical Behavior of Materials (senior),
- Physical Metallurgy (senior),
- Mechanical Metallurgy (senior),
- Advanced Materials Science (graduate),
- Fatigue and Fracture of Engineering Materials (graduate).

OTHER ACADEMIC EXPERIENCE

- Chairman, ME Department Planning Committee
- Chairman, ME Department Labs and Workshop Development Committee
- Member, ME Department Graduate Committee
- Member, ME Department Safety Committee
- Member, ME Faculty Search and Strategic Planning Committee
- Member, ME Department Text Book Committee
- Member Academic Advising and Curriculum Committee

Has also served as Chairmen and member of several Ad hoc Committees, appointed by the Vice Rector Applied Research, Vice Rector Scientific Research, Dean College of Engineering, ME Department Chairmen.

AWARDS AND HONORS

- Distinguish Service Award (2003), Department of Mechanical Engineering, KFUPM
- Nominated for Distinguish Adviser Award (1991), College of Engineering, KFUPM
- Association of Overseas Technical Scholarship Award, Japan (1973).
- Board of Higher Secondary Education Merit Scholarship Award, (1965)

RESEARCH PUBLICATIONS

1. **Z. Khan**, N. Merah, F. Saghir, “Fatigue Crack growth Process in CPVC Pipe Coupling”, , e-Polymers, #060, 2007.
2. **Z. Khan** and N. Merah, “Fractographic Analysis of Fatigue Crack Growth in CPVC at Different Temperatures and Frequencies”, Proc. AMPT 2006, July 28-Aug. 03, 2006, Las Vegas, USA,
3. Nesar Merah, **Z. Khan**, and A. Bazoune, “Temperature and Loading Frequency Effects on the Fatigue Crack Growth in HDPE Pipe Material”, AJSE, Vol. 31, No. 2C, (2006), P.19.
4. N. Merah, F. Saghir, **Z. Khan** and A. Bazoune, “Effect of Temperature on Tensile Properties of HDPE Pipe Material”, J. Plastics, Rubber and Composites, Vol 35, No. 5, (2006), P.226
5. **Z. Khan**, F. Habib, N. Merah, “Effect of thermal aging on the Microstructure and Fatigue Strength of Alloy 800 HT”, to be published, Int. J. of Microstructure and Materials Properties.
6. Nesar Merah, Farukh Saghir, **Z. Khan** and A. Bazoune, “A study of frequency and temperature effects on fatigue crack growth resistance of CPVC”, *Engineering Fracture Mechanics, Volume 72, Issue 11, July 2005, Pages 1691-1701*
7. M. Shafeeq, **Z. Khan**, N. Merah, M. Mehdi, “Effect of environment on the tensile and fatigue resistance of glass fiber reinforced/vinylester composites”, the second international conf. on application of traditional and high performance materials in harsh environment, Sharjah, UAE, Mar. 18-20, 2006
8. M. K. Naik, F. Al-Sulaiman, **Z. Khan**, N. Merha, M. Mehdi, “Low velocity impact behavior of composite pipes”, the second international conf. on application of traditional and high performance materials in harsh environment, Sharjah, UAE, Mar. 18-20, 2006
9. Turki Al-Qahtani, N. Merah, **Z. Khan**, “Effect of strain rate and temperature on tensile properties of CPVC pipe material”, the second international conf. on application of traditional and high performance materials in harsh environment, Sharjah, UAE, Mar. 18-20, 2006

10. Naser Merah, Farrukh Saghir, **Z. Khan**, and A. Bazoune, "Temperature Effect on the Fatigue Crack Growth Behavior in HDPE Pipe Material", the second international conf. on application of traditional and high performance materials in harsh environment, Sharjah, UAE, Mar. 18-20, 2006
11. "Effect of environmental conditions on the performance of vinyl ester and epoxy based glass fiber reinforced thermo set pipes" Third progress report. KFUPM-SaudiAramco Project ME 2236, Jan. 2006.
12. "Effect of environmental conditions on the performance of vinyl ester and epoxy based glass fiber reinforced thermo set pipes" Second progress report. KFUPM-SaudiAramco Project ME 2236, July 2005.
13. F. Saghir, N. Merah, **Z. Khan** and A. Bazoune, "Modeling the combined effects of temperature and frequency on fatigue crack growth of chlorinated polyvinyl chloride (CPVC)", *Journal of Materials Processing Technology, Volumes 164-165, 15 May 2005, Pages 1550-1553*
14. "Effect of environmental conditions on the performance of vinyl ester and epoxy based glass fiber reinforced thermo set pipes" First progress report. KFUPM-SaudiAramco Project ME 2236, Jan. 2005
15. Merah N, Irfan-ul-Haq M, **Khan Z**, "Effect of injection molding weld on fatigue crack resistance of CPVC at different temperatures", Proceedings of AMPT2003, Dublin, Ireland, 8–11 July 2003.
16. N. Merah, M. Irfan-ul-Haq and **Z. Khan**, "Effects of injection molding weld on fatigue crack resistance of CPVC at different temperatures" *Journal of Materials Processing Technology, Volumes 155-156, 30 November 2004, Pages 1261-1265*
17. Rehan Khan, **Z. Khan** F. Al-Sulaiman, and N. Merah, "Fatigue Life Estimates In Woven Carbon Fabric/Epoxy Composites At Non-Ambient Temperatures", *Journal of Composite Materials*, Vol. 36, No. 22, 2002
18. N. Merah, **Z. Khan**, K. Mazghani, M. O. Budair, M. Younas, and O. Olabisi, "Fatigue Crack Propagation in Weld Zone of CPVC Pipefittings at Different Temperatures", *J. of Polymer Engineering*, vol. 21, No. 6, (2001), pp 521-542
19. N. Merah, M. Irfan-ul-Haq, **Z. Khan**, "Temperature and Weld Effects on Monotonic and Cyclic Properties of CPVC, accepted for presentation in 6th Biennua Conference on Engineering Systems Design and Analysis, Istanbul, Turkey, July 8-11, 2002
20. K. Mazghani, N. Merah, **Z. Khan**, M.O. Budair, M. Younas, O. Olabisi, Fracture Analysis of Crack Growth in CPVC Pipefittings at Different Temperatures, Polymer Processing Society, June 16-20, 2002, Guimaroës, Portugal

21. Z. Khan, R. Khan, F. Al-Sulaiman, N. Merah, "Fatigue Damage in Woven Carbon Fabric/Epoxy Laminates at Non-Ambient Temperatures, 6th Saudi Engineering Conference, Dec. 14-17, 2002
22. Gasem M. Fallatah, Anwar K. Sheikh, **Zafarullah Khan**, John K. Boah "Reliability of Dissimilar Metal Welds Subjected to Sulfide Stress Cracking, 6th Saudi Engineering Conference, Dec. 14-17, 2002
23. **Z. Khan**, F. A. Al-Sulaiman, J. K. Farooqi, and M. Younas, "Fatigue Life Predictions in Woven Carbon Fabric/Polyester Composites Based on Modulus Degradation", J. of Reinforced Plastics and Composites, Vol. 20, No. 05, (2001), pp 377-398
24. **Z. Khan**, Rehan, I. Khan, Non-ambient Temperature Fatigue and Fatigue Life Predictions in Woven Carbon Fabric/Epoxy Laminates", Proc. 8th International Conference on Composite Engineering, Aug. 3-11, 2001, Tenerife, Canary Islands, Spain
25. **Z. Khan**, N. Merah, K. Mazghani, M. O. Budair, M. Younas, and O. Olabisi, "Fatigue Resistance of CPVC Pipefittings", Proc. 9th Middle Eastern Corrosion Conference, Feb. 12-14, 2001, Manama, Bahrain, pp 479-490
26. N. Merah, **Z. Khan**, K. Mazghani, M. O. Budair, M. Younas, and O. Olabisi, "Fatigue Crack Propagation in Injection Molded CPVC Pipefittings", Proc. 9th Middle Eastern Corrosion Conference, Feb. 12-14, 2001, Manama, Bahrain, pp 456-478
27. "Metallurgical Laboratory Analysis of Super Heater and Re Heater Boiler Tubes for Qurryah Power Plant", Final Report, KFUPM Mechanical Engineering Research Project # ME xxxx, July 2001 (**Z. Khan**, A.A. Al-Farayedhi)
28. F.S. Qureshi, A.K. Sheikh, **Z. Khan**, M. Ahmad, "Statistical Modelling of Crack Growth and Reliability Assessments of HDPE, J. of Materials Engineering and Performance, Vol. 8, No. 3, 1999, p.347
29. "Crack Initiation and Growth in CPVC Weld Zone", Eight Monthly Report, KFUPM Mechanical Engineering-Saudi Aramco Research Project # PN 20015, Oct-Nov, 1999 (**Z. Khan**, N. Merah, K. Mazghani, M. O. Budair, and M. Younas)
30. "Crack Initiation and Growth in CPVC Weld Zone", Second Semi Annual Report, KFUPM Mechanical Engineering-Saudi Aramco Research Project # PN 20015, Oct., 1999 (**Z. Khan**, N. Merah, K. Mazghani, M. O. Budair, and M. Younas)
31. "Crack Initiation and Growth in CPVC Weld Zone", Third Semi Annual Report, KFUPM Mechanical Engineering-Saudi Aramco Research Project # PN 20015, Feb., 2000 (**Z. Khan**, N. Merah, K. Mazghani, M. O. Budair, and M. Younas)
32. "Crack Initiation and Growth in CPVC Weld Zone", Final Report, KFUPM Mechanical Engineering-Saudi Aramco Research Project # PN 20015, Aug., 2000 (**Z. Khan**, N. Merah, K. Mazghani, M. O. Budair, and M. Younas)

33. Yilbas B.S., Khaled M, Gondal M.A., Ourfelli M., Khan Z., Al-Qutub A., El-Ali B. "Nano-second pulse laser treatment of Incoloy 800 HT alloy-corrosion properties", J. of Optics and Laser in Engineering, 32 (2), 1999, 157-172
34. **Z. Khan**, F. Al-Sulaiman, J. Farooqi, "Fatigue Damage Characterization in Plain-Weave Carbon-Carbon Fabric enforced Plastic Composite Laminates, Journal of Reinforced Plastics and Composites", Vol.17, No. 15, 1998, P 1320.
35. B.S. Yilbas, M.M. Khaled, R. Kahraman, A. Qutub, **Z. Khan**, M. Orfelli, "The Corrosion Behavior of TiN Coated and Uncoated Incolloy 800 Alloy<" J. of Materials Performance and Engineering, 1998, Vol.7, No. 6
36. **Z. Khan**, A. Rauf, M. Younas, "Prediction of Fatigue Crack Propagation Life in Notched Members Under Variable Amplitude Loading", J. of Materilas Engineering and Performance, Vol.6 (3), 1997, P365
37. **Z. Khan**, A. S. Al-Suwayian, "The Notch Effect of Geometric Stress Raisers in Fatigue", The Arabian Journal of Science and Engineering", Vol.22, No. 28, 1997, P 223. (with Alswayian)
38. B.S. Yilbas, A. B. Aleem, A. Coban, R. Khraman, **Z. Khan**, "Corrosion Properties of Plasma Nitrided and Laser Melted Ti-6Al-4V alloy, Proc. Surface Treatment, Oxford, UK., 15-17 July, 1997
39. M.M. Khaled, B.S. Yilbas, A. Qutub, A. Coban, R. Khraman, **Z. Khan**, M. Orfelli, "Determination of Electrochemical Response of Incolloy 800 and Ti-6Al-4V," Proc. Saudi-French Workshop on Recent Developments in Materials Processing and Modelling, KFUPM, Dhaharan, Saudi Arabia, 1997, P109
40. **Z. Khan**, M. Ahmad, "Stress-induced Martensitic Transformation in Metastable Austenitic Stainless Steels: Effect on Fatigue Crack Growth Propagation Rates", J. of Materials Engineering and Performance, Vol.5 (2), 1996, P200
41. **Z. Khan**, "Effect of Corrosive Environment on the Fatigue crack initiation and Propagation behavior of Al 5454-H32", J. of Materials Engineering and Performance, Vol.5 (1), 1996, P78
42. **Z. Khan**, M. Younas, "Corrosion Fatigue Life Prediction for Notched Members Based on the Local Strain and Linear Elastic Fracture Mechanics Concepts", Int. J. of Fatigue, Vol.18, No.7, 1996, P491
43. **Z. Khan**, Z. Ahmad, A. Aleem, "Corrosion and Corrosion Fatigue Behavior of Modified Aluminum Magnesium lloy in Arabian Gulf Seawater Environment", The Arabian Journal of Science and engineering, Vol. 20, No. 2, 1995, P369
44. Z. Gassem, **Z. Khan**, "Fatigue Life Predictions for Notched Al-2.5 Mg Alloy in a Corrosive Environment," Materials Science and Technology, Vol. 11, 1995, P 159

45. **Z. Khan**, Z. Gasseem, M. Younas, "A Fatigue Life Prediction Methodology for Notched Aluminum-Magnesium Alloy in Gulf Seawater Environment", *J. of Materials Engineering and Performance*, Vol. 4 (5), 1995, P 617
46. **Z. Khan**, J. K. Farooqi, F. A. Al-Sulaiman, "Fatigue Damage Characterization in plain weave Carbon-Carbon Fabric Reinforced Plastic Composites", *Proc. 5th Inter. Symposium on Advanced Materials*, 1997, Pakistan. P 512
47. **Z. Khan**, "Influence of Corrosive Environment on Fatigue Behavior of Al 5454-H32 Alloy," *Proc. 4th Saudi Engineering Conf.* 1995, Jeddah, Saudi Arabia, Vol. IV, P 209
48. **Z. Khan**, A. K. Sheikh, "University-Industry Affiliation in Materials Engineering and Fracture Control Research," *Proc. Third Saudi Engineering Conf.*, Nov. 24-27, 1991, Vol. 2
49. **Z. Khan**, G. Banas, F.V. Lawrence, " Fatigue Resistance of Saddle Joints", Technical Report to General Motors Corp. 1988
50. **Z. Khan**, G. Banas, F.V. Lawrence, "The Fatigue Resistance of Automotive Weldments," Phase VII, Technical Report to General Motors, 1988
51. P. Kurath, **Z. Khan**, D. F. Socie, "Fatigue Life of a Notched Member in a Corrosive Environment", *J. of Pressure Vessel Technology*, Vol. 109, 1987, P135.
52. **Z. Khan**, J. M. Rigsbee, "The Fatigue Resistance of Ti-6Al-4V Coated Sheet Material, Phase II, Technical Report to Union Carbide Corporation, 1987
53. **Z. Khan**, F.V. Lawrence, H.T. Corten," The Fatigue Resistance of Thin Gauge Automotive Weldments", Phase VI, Technical Report to General Motors Corp., 1986
54. **Z. Khan**, J. M. Rigsbee, "The fatigue Resistance of Ti-6Al-4V Coated Sheet Material, Technical Report to Union Carbide Corp., 1985
55. **Z. Khan**, F.V. Lawrence, J.C. McMahon, H.T. Corten, "The Fatigue Resistance of Thin Gauge Automotive Weldments," Phase V, Technical Report to General Motors Corporation, 1985