

Curriculum Vitae

Esmail Poursaeidi

- **Birth:** 1966
- **Title:** Professor
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Department of Mechanical Engineering University of Zanjan,
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Educations

- **PhD:** Mechanical Engineering (Applied Mechanic), 1997-2004
PhD thesis: Plastic Analysis of Cylindrical Shells with Cutouts Under Non-Uniform Axial Loading
Tarbiat Modares University, Tehran, Iran
- **MSc:** Mechanical Engineering (Applied Mechanic), 1991-1994
MSC thesis: Creep Lifetime Prediction of Gas Turbine Blade
Tarbiat Modares University, Tehran, Iran
- **BSc:** Mechanical Engineering (Applied Mechanic), 1985-1991
Sharif University of Technology, Tehran, Iran

Research Interest

- **Failure analysis**
- **Life estimation**
- **Erosion and corrosion**
- **Creep and fatigue**
- **Fracture mechanics**
- **Coatings**
- **Gas turbine**

Courses

- **Graduate Studies**
- Fracture Mechanic, Creep , Fatigue and Fracture, Mechanical Behavior, Continuum Mechanics, Elasticity, Viscoelasticity.
- **BSc:**
Mechanics of Material I, II and III, Mechanical Engineering Design, Static, Vibration. Gas Turbine & Jet Engine.

Supervised Thesis

- **PhD: 12**
- **MSc: 40**
- **BSc: 60**

Work Experiences

- Member of audit committee of University of Zanjan and University of graduate studies of Zanjan. (2013-2022).
- Member of the expert commission of engineering department of characteristics of Zanjan University (2011-2020).
- University of Zanjan faculty member (2006-Now).
- Head and expert of mechanical repairs – Iran National Company of Lead and Zinc (1993-1995).
- Corporation with Majd-Mizan Company in regards to estimation of gas turbine blades lifetime (1995-1997).
- Research affairs and laboratory manager - Iran Power Plant Repairs Company (1998-2009).
- Head, the research group “promote technological capability in the area of design, manufacturing and maintenance of turbo compressors”, the group from the Department of Research and Technology, Ministry of Oil has been approved in 2013.

Publications

- ISI

1. Poursaeidi, E., & Salavatian, M. (2007). Failure analysis of generator rotor fan blades. *Engineering failure analysis*, 14(5), 851-860.
2. Poursaeidi, E., & Mohammadi, M. R. (2008). Failure analysis of lock-pin in a gas turbine engine. *Engineering Failure Analysis*, 15(7), 847-855.
3. Poursaeidi, E., Aieneravaie, M., & Mohammadi, M. R. (2008). Failure analysis of a second stage blade in a gas turbine engine. *Engineering failure analysis*, 15(8), 1111-1129.
4. Alashti, R. A., Rahimi, G. H., & Poursaeidi, E. (2008). Plastic limit load of cylindrical shells with cutouts subject to pure bending moment. *International journal of pressure vessels and piping*, 85(7), 498-506.
5. Poursaeidi, E., & Salavatian, M. (2009). Fatigue crack growth simulation in a generator fan blade. *Engineering Failure Analysis*, 16(3), 888-898.
6. Poursaeidi, E., Pirmohammadi, A. A., & Arhani, M. R. (2009). Mechanical investigation of a failed lock-pin. *Journal of engineering for gas turbines and power*, 131(4).
7. Poursaeidi, E., Aieneravaie, M., & MOHAMMADI ARHANI, M. R. (2009). Failure analysis of a 9-12% Cr steel superheater tube. *Journal of pressure vessel technology*, 131(6).
8. Poursaeidi, E., & Arhani, M. M. (2010). Failure investigation of an auxiliary steam turbine. *Engineering Failure Analysis*, 17(6), 1328-1336.
9. Poursaeidi, E., & Arablu, M. (2011). Using CFD to study combustion and steam flow distribution effects on reheater tubes operation. *Journal of fluids engineering*, 133(5).
10. Arablu, M., & Poursaeidi, E. (2011). Using CFD for NO x emission simulation in a dual fuel boiler. *Combustion, Explosion, and Shock Waves*, 47(4), 426-435.
11. Poursaeidi, E., Babaei, A., Arhani, M. M., & Arablu, M. (2012). Effects of natural frequencies on the failure of R1 compressor blades. *Engineering Failure Analysis*, 25, 304-315.
12. Poursaeidi, E., Babaei, A., Behrouzshad, F., & Arhani, M. M. (2013). Failure analysis of an axial compressor first row rotating blades. *Engineering Failure Analysis*, 28, 25-33.
13. Sanaieei, M., & Poursaeidi, E. (2013). Life estimate of a compressor blade through fractography. *International Journal of Engineering*, 26(4), 393-400.
14. Amini, M., Moharrami, A., & Poursaeidi, E. (2013). Failure probability and remaining life assessment of reheater tubes. *International Journal of Engineering*, 26(5), 543-552.
15. Poursaeidi, E., Arablu, M., Meymandi, Y., & Mohammadi Arhani, M. R. (2013). Investigation of choking and combustion products' swirling frequency effects on gas turbine compressor blade fractures. *Journal of fluids engineering*, 135(6).
16. Poursaeidi, E., M. R. Mohammadi Arhani, M. A. Yahya Meymandi, M. Arablu, Effective Parameters on Flow Stability in a Gas Turbine Combustion Chamber *Journal of Fluids Engineering-Transactions of the ASME* ,FE-11-1502,accepted, DOI: 10.1115/1.4023852
17. Poursaeidi, E., & Arablu, M. (2013). Humidity effects on corrosion-assisted fatigue fracture of heavy-duty gas turbine compressor blades. *Journal of Propulsion and Power*, 29(5), 1009-1016.
18. Poursaeidi, E., & Bazvandi, H. (2016). Effects of emergency and fired shut down on transient thermal fatigue life of a gas turbine casing. *Applied Thermal Engineering*, 100, 453-461.
19. Poursaeidi, E., Mohammadi Arhani, M. R., Hosseini, S., Darayi, M., & Arablu, M. (2015). Partial stall effects on the failure of an axial compressor blade. *Journal of Engineering for Gas Turbines and Power*, 137(12).

20. Mohammadi Arhani, M. R., & Poursaeidi, E. (2015). Reverse Engineering for Designing the Coupling of a 32 MW Rotor-generator by Shrink Fitting Method. *International Journal of Engineering*, 28(9), 1375-1382.
21. Mahmoudi, T., Parvizi, A., Poursaeidi, E., & Rahi, A. (2015). Thermo-mechanical analysis of functionally graded wheel-mounted brake disk. *Journal of Mechanical Science and Technology*, 29(10), 4197-4204.
22. Poursaeidi, E., Ghaemi, H., & Charmchi, M. (2014). Effects of temperature gradient on compressor casing in an industrial gas turbine. *Case Studies in Thermal Engineering*, 3, 35-42.
23. Poursaeidi, E., & Bakhtiari, H. (2014). Fatigue crack growth simulation in a first stage of compressor blade. *Engineering Failure Analysis*, 45, 314-325.
24. Poursaeidi, E., Taheri, M., & Farhangi, A. (2014). Non-uniform temperature distribution of turbine casing and its effect on turbine casing distortion. *Applied thermal engineering*, 71(1), 433-444.
25. Poursaeidi, E., Kavandi, A., Vaezi, K., Kalbasi, M. R., & Arhani, M. M. (2014). Fatigue crack growth prediction in a gas turbine casing. *Engineering Failure Analysis*, 44, 371-381.
26. Refahi, M. A. A., & Poursaeidi, E. (2015). Developing a Numerical and Analytical Model of Fatigue Crack Growth Rate in Rock. *Journal of Applied Environmental and Biological Sciences*.
27. Poursaeidi, E., Tafreshi, H., & Amani, H. (2017). Experimental-numerical investigation for predicting erosion in the first stage of an axial compressor. *Powder Technology*, 306, 80-87.
28. Azizpour, A., & Poursaeidi, E. (2017). Fracture and deformation mechanism of Ti (C, N)/TiAlSiN multilayer coating: FE modeling and experiments. *Ceramics International*, 43(2), 1830-1838.
29. Poursaeidi, E., Niaei, A. M., Arablu, M., & Salarvand, A. (2017). Experimental investigation on erosion performance and wear factors of custom 450 steel as the first row blade material of an axial compressor. *International Journal of Surface Science and Engineering*, 11(2), 85-99.
30. Pedram, O., & Poursaeidi, E. (2018). Total life estimation of a compressor blade with corrosion pitting, SCC and fatigue cracking. *Journal of Failure Analysis and Prevention*, 18(2), 423-434.
31. Poursaeidi, E., & Kamalzadeh Yazdi, M. (2018). Application of the hot spotting method for the straightening of a large turbine rotor. *International Journal of Engineering*, 31(1), 110-119.
32. Torkashvand, K., Poursaeidi, E., & Ghazanfarian, J. (2018). Experimental and numerical study of thermal conductivity of plasma-sprayed thermal barrier coatings with random distributions of pores. *Applied Thermal Engineering*, 137, 494-503.
33. Torkashvand, K., & Poursaeidi, E. (2018). Effect of temperature and ceramic bonding on BC oxidation behavior in plasma-sprayed thermal barrier coatings. *Surface and Coatings Technology*, 349, 177-185.
34. Azizpour, A., Soleymani, A., & Poursaeidi, E. (2018). Analytical estimation of fracture toughness for circumferential cracks in thin hard films on ductile substrates. *International Journal of Applied Ceramic Technology*, 15(6), 1407-1414.
35. Torkashvand, K., Poursaeidi, E., & Mohammadi, M. (2018). Effect of TGO thickness on the thermal barrier coatings life under thermal shock and thermal cycle loading. *Ceramics International*, 44(8), 9283-9293.
36. Poursaeidi, E., Aieneravaie, M., Bannazadeh, R., & Torkashvand, K. (2019). Failure Analysis of a GTD-111 Turbine Blade Using Metallurgical Analysis and Fractography. *Journal of Failure Analysis and Prevention*, 19(5), 1358-1369.
37. Poursaeidi, E., Niaei, A. M., Lashgari, M., & Torkashvand, K. (2018). Experimental studies of erosion and corrosion interaction in an axial compressor first stage rotating blade material. *Applied Physics A*, 124(9), 1-15.

38. Salarvand, A., Poursaeidi, E., & Azizpour, A. (2018). Probability Approach for Prediction of Pitting Corrosion Fatigue Life of Custom 450 Steel. *International Journal of Engineering*, 31(10), 1773-1781.
39. Poursaeidi, E., Kavandi, A., & Torkashvand, K. (2018). Study of Creep–Fatigue Crack Growth Behavior in a Gas Turbine Casing. *Journal of Failure Analysis and Prevention*, 18(6), 1607-1615.
40. Rahimi, J., Poursaeidi, E., & Khavasi, E. (2019). Stress analysis of a second stage gas turbine blade under asymmetric thermal gradient. *Mechanics & Industry*, 20(6), 607.
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42. Azizpour, A., Hahn, R., Klimashin, F. F., Wojcik, T., Poursaeidi, E., & Mayrhofer, P. H. (2019). Deformation and cracking mechanism in CrN/TiN multilayer coatings. *Coatings*, 9(6), 363.
43. Poursaeidi, E., Torkashvand, K., & Mohammadi, M. (2019). Air Plasma Sprayed Bond Coat Oxidation Behavior and its Resistance to Isothermal and Thermal Shock Loading. *International Journal of Engineering*, 32(6), 872-876.
44. Bazvandi, H., & Poursaeidi, E. (2020). Effect of additional holes on crack propagation and arrest in gas turbine casing. *Engineering Failure Analysis*, 111, 104443.
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46. Salehnasab, B., & Poursaeidi, E. (2020). Mechanism and modeling of fatigue crack initiation and propagation in the directionally solidified CM186 LC blade of a gas turbine engine. *Engineering Fracture Mechanics*, 225, 106842.
47. Pedram, O., Mollapour, Y., Shayani-jam, H., Poursaeidi, E., & Khamed, R. (2020). Pitting Corrosion Behavior of CUSTOM 450 Stainless Steel Using Electrochemical Characterization. *Metals and Materials International*, 1-11.
48. Amini, H., Gholizadeh, P., Poursaeidi, E., & Davoodi, J. (2021). A molecular dynamics simulation of Ti–TiN multilayer deposition on FeCrNi (001) alloy substrate. *Vacuum*, 193, 110519.
49. Salehnasab, B., Marzbanrad, J., & Poursaeidi, E. (2021). Transient Thermal Fatigue Crack Propagation Prediction in a Gas Turbine Component. *Engineering Failure Analysis*, 105781.
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51. Mollapour, Y., & Poursaeidi, E. (2021). Experimental and numerical analysis of Pitting Corrosion in CUSTOM 450 Stainless Steel. *Engineering Failure Analysis*, 128, 105589.
52. Mollapour, Y., Poursaeidi, E., & Pedram, O. (2022). Study of pitting corrosion under actual operating conditions of a first stage compressor blade. *Engineering Failure Analysis*, 131, 105822.
53. Gholizadeh, P., Amini, H., Davoodi, J., & Poursaeidi, E. (2022). Molecular dynamic simulation of crack growth in Ti/TiN multilayer coatings. *Materials Today Communications*, 30, 103059.
54. Fartash, A. H., & Poursaeidi, E. (2022). Thermal analysis of thermal barrier coating systems under transient and time harmonic thermal loads. *Applied Thermal Engineering*, 208, 118225.
55. Javad Rahimi, Mohammad Rasoul Javadi Sigaroodi, Esmaeil Poursaeidi, Thermal shock resistance of thermal barrier coating with different bondcoat types and diffusion pre coating, *Ceramics International*, 2022, ISSN 0272-8842.
56. Farzam Montakhabi, Esmaeil Poursaeidi, Javad Rahimi, Mohammad Rasoul Javadi Sigaroodi, Investigation of the effect of BC layer surface roughness and TC layer porosity on stress values in

- plasma sprayed coatings based on SEM images, *Materials Today Communications*, Volume 33, 2022, 104737, ISSN 2352-4928.
57. Esmail Poursaeidi, Amin Azizi Far, Javad Rahimi, Mohammad Rasoul Javadi Sigaroodi, Cooling channel blockage effect on TBC and substrate behavior in a gas turbine blade failure, *Engineering Failure Analysis*, Volume 141, 2022, 106682, ISSN 1350-6307.
 58. Poursaeidi, E., Jamalabad, Y. Y., Rahimi, J., & Sigaroodi, M. R. J. (2022). The effect of CMAS penetration on the microstructure and failure of the TBCs applied by APS/APS method. *Surface and Coatings Technology*, 129053.
 59. Pedram, O., Jamali, R., Rad, V. F., Khamedi, R., Poursaeidi, E., & Moradi, A. R. (2022). Evaluation of pitting corrosion by dynamic speckle pattern analysis. *Scientific Reports*
 60. Rahimi, J., Poursaeidi, E., Montakhabi, F., Sigaroodi, M. R. J., & Jamalabad, Y. Y. (2023). Experimental and numerical life evaluation of TBCs with different BC and diffusion coating under cyclic thermal loading. *International Journal of Applied Ceramic Technology*.
 61. Salehnasab, B., Marzbanrad, J., & Poursaeidi, E. (2023). A predictive approach for thermal fatigue crack growth behaviour of shot peened Ni75 alloy. *Journal of Design Against Fatigue*, 1(1).
 62. Pedram, O., Jamali, R., Abbasian, V., Rad, V. F., Darafsheh, A., Khamedi, R., Poursaeidi, E & Moradi, A. R. (2023). Evaluation of pitting corrosion by dynamic speckle pattern analysis. *Scientific reports*, 13(1), 8549.
 63. Torkashvand, K., Poursaeidi, E., Mohammadi, M., Rahimi, J., & Montakhabi, F. (2023). Experimental and numerical study of TGO-induced stresses of plasma-sprayed thermal barrier coating. *Materials Today Communications*, 35, 105977.
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 65. Sigaroodi, M. R. J., Poursaeidi, E., Rahimi, J., & Jamalabad, Y. Y. (2023). Heat treatment effect on coating shock resistance of thermal barrier coating system with different types of bond coat. *Journal of the European Ceramic Society*, 43(8), 3658-3675.
 66. Rahimi, J., Poursaeidi, E., Montakhabi, F., Sigaroodi, M. R. J., & Jamalabad, Y. Y. (2023). Effect of Thermal Spraying Method, Time and Temperature on the Thickness of Thermally Grown Oxide and Lifetime of Thermal Barrier Coatings. *Journal of Thermal Spray Technology*. JTST-22-11-5272.R3
 67. Esmail Poursaeidi, Sigaroodi, M. J., Aienravaie, M., Failure investigation of fatigue crack initiation and propagation in compressor blade, *Engineering Failure Analysis*, Volume 162, 2024, 108370, ISSN 1350-6307.
 68. Rahimi, J., Choupani, N., Poursaeidi, E., Montakhabi, F., Sigaroodi, M. R. J., & Jamalabad, Y. Y. (2024). Investigation of the hot corrosion effects on the lifetime of TBCs with and without TC, *Journal of Alloys and Compounds* 1004(2024)175840
 69. Sigaroodi, M. J., Rahimi, J., **Poursaeidi, E.**, & Montakhabi, F. (2023). Impact of Bond Coat Types on Calcium-Magnesium-Alumina-Silicate and Hot Corrosion Behavior in Thermal Barrier Coatings. *Corrosion Science*, 111742.
 70. Salehnasab, B., Marzbanrad, J., & **Poursaeidi, E.** (2024). Conventional shot peening treatment effects on thermal fatigue crack growth and failure mechanisms of a solid solution alloy. *Engineering Failure Analysis*, 155, 107740.
 71. Fartash, A. H., **Poursaeidi, E.**, & Choupani, N. (2024). Thermal response of TBC systems subjected

to non-uniform thermal shocks and periodic thermal load: Effect of Biot number and interface imperfection. *Thermal Science and Engineering Progress*, 55, 102892.

72. **Poursaeidi, E.**, Sigaroodi, M. J., & Aieneravaie, M. (2024). Failure investigation of fatigue crack initiation and propagation in compressor blade. *Engineering Failure Analysis*, 162, 108370.
73. Rahimi, J., **Poursaeidi, E.**, Montakhabi, F., Sigaroodi, M. R. J., & Jamalabad, Y. Y. (2024). Impact of bond coat types on calcium-magnesium-alumina-silicate and hot corrosion behavior in thermal barrier coatings. *Corrosion Science*, 227, 111742.
74. Rahimi, J., Choupani, N., **Poursaeidi, E.**, Montakhabi, F., Sigaroodi, M. J., et al. (2024). Investigation of the hot corrosion effects on the lifetime of TBCs with and without TC. *Journal of Alloys and Compounds*, 1004, 175840.
75. Karimi Ivanaki, M., **Poursaeidi, E.**, & Afshari, D. (2025). Experimental and numerical investigation of single and double pass friction stir welding of dissimilar aluminum alloys 6061-T6 and 5083 with the addition of Al₂O₃. *Transactions of the Indian Institute of Metals*, 78(5), 127.
76. Fartash, A. H., **Poursaeidi, E.**, & Choupani, N. (2025). Thermo-elasticity analysis of coating-substrate systems under local thermal shocks and impact loads considering imperfect thermal and mechanical bonding. *Thin-Walled Structures*, 208, 112854.
77. Moghimi, T., Abdollahi, S. A., **Poursaeidi, E.**, & Ranjbar, S. F. (2025). A numerical investigation of heat transfer and clogging in smooth and ribbed cooling channels of the GEF9's first rotor blade. *Results in Engineering*, 26, 103368.
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79. Sigaroodi, M. J., Rahimi, J., & **Poursaeidi, E.** (2026). Combined effects of hot and CMAS corrosion and initial heat treatment on HVOF-applied CoNiCrAlY bond coats. *Ceramics International*.
80. Karimi Ivanaki, M., **Poursaeidi, E.**, & Afshari, D. (2026). Investigating the effect of Al₂O₃ nanoparticles on the microstructure and corrosion resistance of dissimilar friction stir welding in aluminum alloys 6061-T6 and 5083-H11. *Journal of Materials Engineering and Performance*, 35(3), 2688–2701.
81. Karimi Ivanaki, M., Afshari, D., & **Poursaeidi, E.** (2026). Effects of friction stir welding of 6061-T6 to 5083-H11 aluminum alloys reinforced with Al₂O₃ on microstructure, hardness, and wear resistance. *International Journal of Precision Engineering and Manufacturing*, 27(2), 667–679.

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- ISC

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2. Poursaeidi E. Rahimi G H & Vafai A.B. (2004). Plastic buckling analysis of cylindrical shells with cutout. Asian journal of civil engineering. Vol.5, Nos 3-4:193-209
3. Poursaeidi, E., & Razavi, A. R. (2008). The causes of local hardness increasing in powerplant rotors and its modification by tempering.
4. Razavi, A. R., & Poursaeidi, E. (2008). An Investigation on the causes of a rotor bending and its thermal straightening. International Journal of Engineering, 21(3), 281-290.
5. Jahedi, R., Farhi, G., & Poursaeidi, E. (2011) Investigation of the hardness of thematic surfaces and release of internal stress of rotor steel. Journal of Sharif Mechanical Engineering.
6. Poursaeidi, E., Mohammadi, M., & Khamesi, S. S. (2012). Effect of Flow Exit Angle and Blade Height on the Temperature Distribution of a Typical Gas Turbine Rotor Blade. In Advanced Materials Research (Vol. 452, pp. 502-506). Trans Tech Publications Ltd.
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8. Mohammadi, M., & PourSaeidi, E. (2018). A review of fatigue mechanisms and finite element simulations of plasma thermal barrier coatings. Advanced Materials and New Coatings, 7 (27), 1937-1953. <https://www.sid.ir/fa/journal/ViewPaper.aspx?id=501851>
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12. Mohammadi, M., & PourSaeidi, E. (2020). Residual stress evaluation due to TBC applying using numerical , experimental and theoritical methods. Iranian Journal of Mechanical Engineering, 22 (1), -. DOI: 10.30506 / ijme.2020.90939.1443
13. Mollapour, Y., & Poursaeidi, E. (2021). Effect of stress on pitting corrosion of Gas Turbine Blade using practical and Finite Element Analysis, Corrosion Science and Engineering - Iranian Corrosion Association 2251-6417
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15. Mollapour, Y., & Poursaeidi, E. (2021). Investigation of Stress Distribution in Corrosion Pits on the Compressor Blade Using Boundary Element Method. Modares Mechanical Engineering, 21(9), 601-613.

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17. Mollapour, Y., Poursaeidi, E., Shayani-jam, H., & Pedram, O. (2021). Numerical and Experimental Evaluation of Pitting Corrosion of CUSTOM 450 Stainless Steel Alloy in Chloride Environment. *Computational Methods in Engineering*, 40(1), 103-124.
18. Poursaeidi, E., Montakhabi, F., & Rahimi, J. (2020). Analytical and Experimental Study of Residual Stresses in Thermal Barrier Coatings Deposited on Gas Turbine Blades in Laboratory Dimensions by APS and HVOF Methods to Calculate the Optimal Thickness. *Journal of Thermal Spray and Engineering*, 3(1), 63-67.
19. Poursaeidi, E., Javadi Sigaroodi, M., Rahimi, J., taleghani, M., Fartash, A. H., Yousefi, Y., & noorsina, S. (2021). The investigation of change in thermal conductivity of porous coatings during the aging process. *Journal of Aeronautical Engineering*, 23(1), 97-108. doi:10.22034/joae.2021.139485
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- Conferences

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2. Poursaeidi, E., & Monajatizadeh, H. (1999). Evaluation of residual life of steam pipes, scientific-specialized conference of power plant industry, Tehran, Iran..
3. Poursaeidi, E., & Mirzaei, M. (1998). Gas turbine blade creep life prediction. 3rd International Conference of Iranian Association of Mechanical Engineers, Tehran, Iran.
4. Poursaeidi, E., & Ganjipour, S. (1999). Methodology and necessity of assessing the remaining life of power plant components. Power Plant Mechanics Seminar, Dez Dam.
5. Razavi, A., & Poursaeidi, E. (2003). Application of real-time monitoring of remaining life in boiler maintenance system. The first specialized seminar on power plant mechanics and petrochemical industries, Tehran, Iran.
6. Saduq, A., & Poursaeidi, E. (2006). Case study and methodology for determining the condition and estimating the remaining life of the components of a 440 MW boiler. The first specialized seminar on power plant mechanics and petrochemical industries, Tehran, Iran.
7. Poursaeidi, E., & Ahmadi, A. (2006b). Analysis of degradation of generator cooling fan model T240-370. the first specialized seminar on mechanics of power plants and petrochemical industries, Tehran, Iran.
8. Poursaeidi, E., Razavi, A., & Ahmadi, A. (2006). Hitachi MS5001 Gas Turbine Rotor Shaft Decomposition Analysis. The first specialized seminar for mechanics in power plants and petrochemical industries, Tehran, Iran.
9. Ayat Elahi, M., Mohammad Aliha, M., & Poursaeidi, E. (2006a). Analysis of broken compressor shaft in a gas power plant using finite element method. 14th International Conference of Iranian Association of Mechanical Engineers.

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Research and Industry Projects

Date	Management of assessment projects and estimation of remaining life in Iran Power Plant Repair Company	Row
2008	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 2 of Shahid Rajaei Power Plant	1
2008	Assessing the condition and estimating the remaining life of the boiler of the 4 units of Shahid Mofteh power plant in Hamadan	2
2008	Estimation of the remaining life of 11 units of gas turbines of Gilan power plant	3
2007	Assessment of condition and estimated life of boiler remaining units of 3 units of Shahid Mofteh power plant in Hamedan	4
2006	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Shahid Rajaei Power Plant	5
2005	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 4 of Shahid Rajaei Power Plant	6
2004	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 3 of Shahid Rajaei Power Plant	7
2004	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Tabriz Power Plant	8
2004	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 4 of Montazer Ghaem power plant	9
2004	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Urmia Gas Power Plant	10
2003	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 4 of Shahid Montazeri Power Plant	11
2003	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 2 of Shahid Rajaei Power Plant	12
2003	Assessing the condition and estimating the remaining life of GE-F5 turbine rotor discs of Unit 3 of Shirvan Power Plant	13
2002	Assessing the condition and estimating the remaining life of the rotor of the 6	14

	Fiat unit of Shiraz gas power plant	
2002	Assessment of condition and estimated life of turbo compressor 601 isomax unit of Shiraz power plant	15
2001	Assessing the condition and estimating the remaining life of boiler and turbine unit 2 of Islamabad power plant in Isfahan	16
2001	Assessing the condition and estimating the remaining life of boiler and turbine unit 4 of Islamabad power plant in Isfahan	17
2001	Assess the condition and estimate the remaining life of the boiler and turbine unit 1 of Biston power plant	18
2001	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Bandar Abbas Power Plant	19
2001	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 2 of Bandar Abbas Power Plant	20
2001	Assessing the condition and estimating the remaining life of the boiler and turbine unit 1 of Toos power plant	21
2001	Assessment of condition and estimated life of rotor unit 7 BBC Shiraz power plant	22
2001	Assessing the condition and estimating the remaining life of GT9 turbine of Shiraz power plant	23
2000	Assessing the condition and estimating the remaining life of boiler and turbine unit 1 of Islamabad power plant in Isfahan	24
2000	Assessing the condition and estimating the remaining life of boiler and turbine unit 5 of Islamabad power plant in Isfahan	25
2000	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Shahid Rajaei Power Plant	26
2000	Assessing the condition and estimating the remaining life of the boiler and turbine of Unit 1 of Besat power plant	27
2000	Assessing the condition and estimating the remaining life of Toos power plant support pipes	28
2000	Assessing the condition and estimating the remaining life of Toos power plant support pipes	29
2000	Assessing the condition and estimating the remaining life of the components	30

	under pressure of turbine and boiler unit 2 of Besat power plant	
2000	Assessing the condition and estimating the remaining life of the crossover pipes of Unit 1 of Lushan Power Plant	31
2000	Assessing the condition and estimating the remaining life of Khark power plant turbine disk	32
1999	Assessing the condition and estimating the remaining life of sensitive parts of GTK-10-3 turbocharger Compressor Station No. 3 of Gas Company	33
1999	Assess the condition and estimate the remaining life of the turbine and boiler components of Unit 4 of Montazer Ghaem Power Plant	34
1997	Assessing the condition and estimating the remaining life of HTSH, LTSH boiler unit unit 2 of Tabriz power plant	35
1997	Assessing the condition and estimating the remaining life of the crossover pipes of Unit 2 of Lushan Power Plant	36
1997	Assessing the condition and estimating the remaining life of Boiler unit 4 of Neka power plant	37
1997	Assessing the condition and estimating the remaining life of Boiler unit 1 of Neka power plant	38

Date	Failure analysis projects and developing repair processes	Row
2010	Investigating the causes of cracks in the shell of the 1 gas unit of Shahid Rajai power plant and predicting the amount of crack growth, providing the necessary solutions to prevent, stop and repair the cracks	1
2009	Radical analysis of cracked moving blades of the first row of air compressors of gas turbines of the second refinery	2
2004	Compilation of process and design of coupling rotor of damaged Zargan generator by shearing fit method	3
2004	Investigation of the cause of Lock Pin failure of the second row of GE-F5 gas turbines in several gas units of the country	4
2007	Investigation of the cause of failure of gas turbine blades of Unit 1 of Shahid Zanbagh Power Plant in Yazd	5
2007	Compilation of GE-F5 gas turbine rotor repair process, unit 2 of Konarak power plant	6

2007	Evaluation of the condition of the generator cooling coils of Unit 12 of Gilan Power Plant	7
2006	Development and implementation of rotor deflection process of unit 2 of Shazand Arak power plant	8
2006	Investigation of the cause of Damping Wire failure of Neka power plant boiler feed pump turbine unit 3	9
2006	Development and implementation of GE-F9 gas turbine shell repair process for Montazer Ghaem power plant	10
2005	Investigating the causes of rotor failure of 18 Ray power plants	11
2004	Feasibility study of making Isomax turbine blades from steel (403) related to Shiraz refinery	12
2004	Investigating the feasibility of constructing generator wedges in Tabriz power plant	13
2004	Investigating the replacement of 420 and 403 stainless steel instead of 410 in the construction of turbine blades	14
2004	Investigating the causes of local stiffness increase in the rotor journal of Bandar Imam power plant	15
2003	Qualitative evaluation of cracked blades of the cooling generator of Unit 2 gas of Guilan power plant	16
2003	Qualitative studies on the ID Fan shaft of Isfahan Shahid Montazeri power plant	17
2002	Quality control studies on the axis and feasibility of construction of CWP shaft of Bandar Abbas power plant	18
2002	An Analysis of the Causes of Hardness Variation with High Dispersion Range in Welded Locations of Zargan Power Plant Rotor	19
2002	Investigation of the causes of failure of the second row blade of GE-F5 turbine unit 3 of Shariati power plant in Mashhad	20
2002	Investigation of cracks in the HP Balance Piston area of the rotor of Unit 4 of Islamabad Power Plant in Isfahan	21
2002	Compilation of Iranshahr power plant rotor de-stress heat treatment process	22
2002	Development of adaptive heat treatment process for welded rotor of Zargan power plant	23

2002	Investigating the causes of failure of the generator fan of the 6-gas unit of Montazer Ghaem power plant	24
2002	Investigation of acute causes and extent of damage to Fiat rotor unit 26 of Ray power plant	25
2001	Investigation and repair of damaged generator rotor unit 1 of Bandar Abbas power plant	26
2001	Investigation and repair of damaged LP turbine rotor unit 1 of Bandar Abbas power plant	27
2001	Investigation of HIP rotor destruction factor of Bandar Abbas 4 power plant unit	28
2001	Development of technical knowledge of HP rotor deflection of Shahid Montazeri power plant	29
2001	Development of technical knowledge of Qom power plant rotor deflection project	30
2001	Investigating the causes of turbine disk failure of Unit 4 of Shariati Power Plant	31
2001	Check the condition and repair of LS Esk Ray power plant	32
2001	Disc stress analysis of GE-F5 turbine blades	33
2000	Investigating the causes of rotor disk failure of Unit 5 of Shariati Power Plant	34
2000	Checking the condition and determining the repair process of the turbine shell of Unit 3 of HESA power plant	35
2000	Investigating the causes of failure of super heater pipe of Shahid Rajaei power plant	36
1999	Investigation of the causes of buckling of Super Heater Harp pipes of combined cycle boilers of Qom power plant, units 1, 2, 3 and 4	37
1999	Investigation of the causes of failure of water pipes and super heater boilers of Biston power plant in Kermanshah	38
1997	Investigating the causes of the destruction of the main steam line of Unit 1 of Ramin Power Plant	39
1997	Investigating the causes of destruction of super hot heater boiler pipes of Bandar Abbas power plant	40
1997	Investigation of the causes of destruction and analysis of the remaining life of the boiler super heater pipe of Tabriz power plant	41

Research Projects (University of Zanjan)

- Analysis of crack initiation of the first row rotary compressor blades of the second refinery power plant (2010-2011).
- Assessing the effect of the air fluid on failure of the generator cooling blades (2009-2010).
- Assessing the reason of the generator cooling blades failure (2007-2008).
- Assessing the factors of initiation crack in turbine casing in the Shahid Rajaei 1 unite and prediction of the amount of crack growth length. Offering the solution ways of crack prevention, arrest and repairs. Project code: 89/500/25958. Tehran Regional Electricity Company – Ministry of energy (2011-2013).
- Technical codification and trial production of resistant coating on GEF6 compressor blades. Project code: 306062. South Pars Gas Company. Ministry of energy (2013-2016)
- Analyzing the fracture of Turbine Blades Uint#4 – Abadan Power Plant (2015)
- Provision of Instruction Manual for reducing the Fatigue and creep damage- selected power plant (Shahid Rajaei PP) (2019-2021)
- Root cause analysis of GE-F9 GasTurbine, compressor blade 1st stage- Fars Combined Cycle Power Plant-(2021-2022)
- Investigating the degradation mechanism and providing a suitable solution to reduce the wear rate of the internal components of the weak pressure bypass control valves of the steam units of Shahid Salimi Neka power plant,Iran (2022-2024).
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