

Journal Publications K. Mathioudakis

- 75 Mathioudakis K, Alexiou A, Aretakis N, Romesis C. Signatures of Compressor and Turbine Faults in Gas Turbine Performance Diagnostics: A Review. *Energies*. 2024; 17(14):3409. <https://doi.org/10.3390/en17143409>
- 74 Mathioudakis K., Aretakis N., Alexiou A. (2024). "Determining Steady-State Operation Criteria Using Transient Performance Modelling and Steady-State Diagnostics. *Appl. Sci.* 2024, 14, 2863. <https://doi.org/10.3390/app14072863> .
- 73 Villette S, Adam D, Alexiou A, Aretakis N, Mathioudakis K. A Simplified Chemical Reactor Network Approach for Aeroengine Combustion Chamber Modeling and Preliminary Design. *Aerospace*. 2024; 11(1):22. <https://doi.org/10.3390/aerospace11010022>.
- 72 Alexiou A, Koliass I, Aretakis N, Mathioudakis K. (2023). "Aero-Engine Preliminary Design Optimization and Operability Studies Supported by a Compressor Mean-Line Design Module. *Aerospace*. 2023; 10(8):726. <https://doi.org/10.3390/aerospace10080726> .
- 71 Koliass I., Aretakis N., Alexiou A., Mathioudakis K., "A Tool for the Design of Turbomachinery Disks for an Aero-Engine Preliminary Design Framework" , *Aerospace* 2023, 10(5), 460; Koliass, I.; Aretakis, N.; Alexiou, A.; Mathioudakis, K. (2023). "A Tool for the Design of Turbomachinery Disks for an Aero-Engine Preliminary Design Framework. *Aerospace* 2023, 10, 460. <https://doi.org/10.3390/aerospace10050460>.
- 70 Ntonas Konstantinos, Nikolaos Aretakis, Orestis A Koskoletos, and Konstantinos Mathioudakis. "1D Multi-Point Marine Turbocharger Design, for Optimal Performance Recovery." Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, (May 2022).. <https://doi.org/10.1177/0957650922110>.
- 69 Koliass, I., Alexiou, A., Aretakis, N., Mathioudakis, K. (2021). "Axial Compressor Mean-Line Analysis: Choking Modelling and Fully-Coupled Integration in Engine Performance Simulations." *International Journal of Turbomachinery, Propulsion and Power*. 2021; 6(1):4 (The paper has been selected as the journal issue cover, and also entered the top 10 most downloaded articles of 2021). <https://doi.org/10.3390/ijtp6010004>
- 68 Alexiou, A., Aretakis, N., Koliass, I., Mathioudakis, K. (2021). "Novel Aero-Engine Multi-Disciplinary Preliminary Design Optimization Framework Accounting for Dynamic System Operation and Aircraft Mission Performance". *Aerospace*. 2021; 8(2):49. <https://doi.org/10.3390/aerospace8020049>
- 67 Ntonas, K., Aretakis, N., Roumeliotis, I., & Mathioudakis, K. (2020). "A Marine Turbocharger Retrofitting Platform". *Journal of Engineering for Gas Turbines and Power*, 142(11). <https://doi.org/10.1115/1.4048652>, also ASME paper GT2020-14643.
- 66 Christos Kalathakis, Nikolaos Aretakis, Ioannis Roumeliotis, Alexios Alexiou, Konstantinos Mathioudakis, Simulation models for supporting the solar thermal power plant operator, *Energy*, Vol. 167, January 2019, pp 1065-1073, ISSN 0360-5442, <https://doi.org/10.1016/j.energy.2018.11.041>.
- 65 Orestis A. Koskoletos, Nikolaos Aretakis, Alexios Alexiou, Christoforos Romesis, Konstantinos Mathioudakis, Evaluation Of Aircraft Engine Diagnostic Methods Through Prodimex , *Journal of Gas Turbines and Power*, 2018, doi:10.1115/1.4040909
- 64 Christos Kalathakis, Nikolaos Aretakis and Konstantinos Mathioudakis, Solar Hybrid Micro Gas Turbine Based on Turbocharger, *Appl. Syst. Innov.* 2018, 1(3), 27; <https://doi.org/10.3390/asi1030027>
- 63 .Kalathakis, C., Aretakis, N., Roumeliotis, I., Alexiou, A., Mathioudakis, K., "Concentrated Solar Power Components Toolbox in an Object Oriented Environment." *Simulation Modelling Practice and Theory*, vol. 70, pp. 21–35, Jan. 2017. Available at: <http://dx.doi.org/10.1016/j.simpat.2016.10.002>.
- 62 .Christos Kalathakis, Nikolaos Aretakis, Ioannis Roumeliotis, Alexios Alexiou and Kostas Mathioudakis ASSESSMENT OF SOLAR GAS TURBINE HYBRIDIZATION SCHEMES , *J. Eng. Gas Turbines Power* , (2016); doi: 10.1115/1.4035289

61. Roumeliotis I., Alexiou A., Aretakis N., Sieros G., Mathioudakis K., "Development and Integration of Rain Ingestion Effects in Engine Performance Simulations", *Journal of Engineering for Gas Turbines and Power*, 137(4), April 2015
60. Aretakis N., Roumeliotis I., Alexiou A., Romesis C., Mathioudakis K., "Turbofan Engine Health Assessment From Flight Data", *Journal of Engineering for Gas Turbines and Power*, 137(4), April 2015
59. Alexiou A., Tsalavoutas A., Pons B., Aretakis N., Roumeliotis I., Mathioudakis K., "Assessing Alternative Fuels For Helicopter Operation", *Journal of Engineering for Gas Turbines and Power*, 134(11), 2012
58. Alexiou A., Roumeliotis I., Aretakis N., Tsalavoutas A., Mathioudakis K., "Modelling Contra-Rotating Turbomachinery Components For Engine Performance Simulations: The Geared Turbofan With Contra-Rotating Core Case", *Journal of Engineering for Gas Turbines and Power*, 134(11), 2012 (Best paper award, of the Cycle Innovations Committee of IGTI / ASME)
57. Aretakis N., Roumeliotis I., Doumouras G., Mathioudakis K., "Compressor Washing Economic Analysis and Optimization for Power Generation", *Applied Energy* 95 (2012) 77–86.
56. Aretakis N., Roumeliotis I., Mathioudakis K., "Performance Model "Zooming" For In-Depth Component Fault Diagnosis", *ASME Journal of Engineering for Gas Turbines and Power*, March 2011, Vol. 133, No. 3, 031602-1 (11 pages)
55. I. Roumeliotis. K. Mathioudakis, "Evaluation of Water Injection Effect on Compressor and Engine Performance and Operability", *Applied Energy* 87 (2010) 1207–1216, 31-DEC-2009
54. A. Kyriazis, K. Mathioudakis, "Enhanced Fault Localization Using Probabilistic Fusion With Gas Path Analysis Algorithms", *Journal of Engineering for Gas Turbines and Power* September 2009, Vol. 131
53. Kyriazis A., Mathioudakis K., "Gas Turbine Fault Diagnosis Using Fuzzy-based Decision Fusion", *AIAA Journal of Propulsion and Power*, , Vol. 25, No. 2, March–April 2009, pp 335-343.
52. A. Alexiou, K. Mathioudakis, "Secondary Air System Component Modelling For Engine Performance Simulations", GT-2008-50771, ASME TURBO EXPO 2008, June 9-13, 2008, Berlin, Germany. Accepted for publication in *Journal of Engineering for Gas Turbines and Power*, Vol 131, May 2009, pp 31202.1-9
51. M. Kelaidis, N. Aretakis, A. Tsalavoutas, K. Mathioudakis, "Optimal Mission Analysis Accounting For Engine Aging And Emissions". Accepted for publication in *Journal of Engineering for Gas Turbines and Power*, Vol. 131, pp 011201_1-10, January 2009
50. V. Dedoussis, V. Canellidis, K. Mathioudakis Aerodynamic experimental investigation using stereolithography fabricated test models: the case of a linear compressor blading cascade, *Virtual and Physical Prototyping*, Volume 3, Issue 3 September 2008, pages 151 – 157.
49. S D Masouros and K Mathioudakis, Estimation of transient wall and flow temperature distributions in a circular duct using an inverse approach, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, Volume 221, Number 11 / 2007, pp 1353-1361.
48. C. Romesis, Ph. Kamboukos, K. Mathioudakis, The Use of Probabilistic Reasoning to Improve Least Squares Based Gas Path Diagnostics, paper GT2006-90619, ASME Turbo Expo 2006: Power for Land, Sea and Air, May 8-11, 2006, Barcelona, Spain. *Journal of Engineering for Gas Turbines and Power* - Oct 2007 -- Volume 129, Issue 4, pp. 970-976
47. I. Roumeliotis, K. Mathioudakis, Water Injection Effects On Compressor Stage Operation, paper GT2006-90427, ASME Turbo Expo 2006: Power for Land, Sea and Air, May 8-11, 2006, Barcelona, Spain. *Journal of Engineering for Gas Turbines and Power* -- July 2007 -- Volume 129, Issue 3, pp. 778-784
46. Roumeliotis I., Mathioudakis K., "Evaluation of Interstage Water Injection Effect on Compressor And Engine Performance", *Journal of Engineering for Gas Turbines and Power*, October 2006, Volume 128, Issue 4, pp. 849-856
45. Roumeliotis I., Mathioudakis K., Analysis of moisture condensation during air expansion in turbines • *International Journal of Refrigeration*, , Volume 29, Issue 7, November 2006, Pages 1092-1099

44. P. Dewallef, C. Romessis, O. Leonard, K. Mathioudakis, "Combining Classification Techniques With Kalman Filters For Aircraft Engine Diagnostics", *Journal of Engineering for Gas Turbines and Power*, ASME. Vol 128, April 2006, pp 281-287
43. Mathioudakis K., Kamboukos Ph., "Assessment of the Effectiveness of Gas Path Diagnostic Schemes", *Journal of Engineering for Gas Turbines and Power*, ASME. Vol 128, Janouray 2006, pp 57-63
42. Romessis C., Mathioudakis K., "Bayesian Network Approach for Gas Path Fault Diagnosis", *Journal of Engineering for Gas Turbines and Power*, ASME. Vol 128, Janouray 2006, pp 64-72
41. P. Kamboukos, K. Mathioudakis, Comparison Of Linear And Non-LINEAR Gas Turbine Performance Diagnostics, ASME Turbo Expo 2002, GT2003-38518. Αποδεκτό για δημοσίευση στο *Journal of Engineering for Gas Turbines and Power*, ASME.vol 127, Jan 2005, pp 49-56.
40. Ph. Kamboukos, A. Stamatis, K. Mathioudakis, Gas Turbine Component Fault Detection From A Limited Number Of Measurements. *Proc. Instn Mech. Engrs Vol. 218*, Dec 2004, Part A: J. Power and Energy, pp 609-618
39. N.Aretakis, K. Mathioudakis, M. Kefalakis, K. D. Papailiou, Turbocharger Unstable Operation Diagnosis Using Vibroacoustic Measurements , ASME Turbo Expo 2002, GT2003-38321. Αποδεκτό για δημοσίευση στο *Journal of Engineering for Gas Turbines and Power*, Transactions of the ASME. Vol 126, Oct 2004 pp 840-847
38. N. Aretakis, K. Mathioudakis and A. Stamatis, Identification of sensor faults on turbofan engines using pattern recognition techniques, *Control Engineering Practice*, July 2004, VOL 12/7 pp 827-836
37. K.Mathioudakis, Gas Turbine Test Parameters Corrections Including Operation With Water Injection, ASME *Journal of Engineering for Gas Turbines and Power*, April 2004, Vol 126, pp 334-341
36. K. Mathioudakis, C. Romessis, Probabilistic Neural Networks For Validation Of On-Board Jet Engine Data, *Proceedings Of The Institution of Mechanical Engineers, PART G, Part G Journal of Aerospace Engineering*, Volume: 218 Page: 59 - 72 , Jan 2004
35. C. Romessis, K. Mathioudakis, Setting Up Of a Probabilistic Neural Network for Sensor Fault Detection Including Operation with Component Faults *Journal of Engineering for Gas Turbines and Power*--July 2003, Vol 125, 3, pp. 634-641
34. N. Aretakis, K. Mathioudakis, A. Stamatis, ,Non-Linear Engine Component Fault Diagnosis From A Limited Number Of Measurements Using A Combinatorial Approach. *Journal of Engineering for Gas Turbines and Power*--July 2003, Vol 125, 3, pp. 642-650
33. K.Mathioudakis, Evaluation of steam and water injection effects on gas turbine operation using explicit analytical relations. *Proceedings Of The Institution of Mechanical Engineers, PART A, Journal of Power and Energy*, Vol 216 No A6, Dec. 2002, pp 419-431.
32. K.Mathioudakis, Ph. Kamboukos, A.Stamatis, Turbofan Performance Deterioration Tracking Using Non-Linear Models And Optimization Techniques. *Transactions of the ASME, Journal of Turbomachinery*, Oct 2002, Vol 124, 580-587
31. K. Mathioudakis , A. Tsalavoutas, Uncertainty Reduction in Gas Turbine Performance Diagnostics by Accounting for Humidity Effects, ASME *Journal of Engineering for Gas Turbines and Power*, Oct 2002, Vol 124, pp 801-808.
30. Mathioudakis K. , Stamatis A. , Tsalavoutas A. , Aretakis N. , Computer models for education on performance monitoring and diagnostics of gas turbines, *Journal of Mechanical Engineering Education*., July 2002, Vol 30, (3), pp 204-218
29. Mathioudakis K. , Analysis of the Effects of Water Injection on The Performance of a Gas Turbine, ASME *Journal of Engineering for Gas Turbines and Power*, July 2002, Vol 124, pp 489-495.
28. Mathioudakis K. , Stamatis A. , Bonataki E. , Allocating the causes of Performance Deterioration in CCGT Plants. ASME *Journal of Engineering for Gas Turbines and Power* , Vol 124, April 2002, pp 256-262

27. Doukelis A., Mathioudakis K., Papailiou K., Hub WALL rotation influence on High-Speed Compressor Cascade Performance. *AIAA Journal of Propulsion and Power*, Vol. 17, No 4, July-August 2001. pp. 902-908
26. K Mathioudakis, A Stamatis, A Tsalavoutas And N Aretakis, Performance analysis of industrial gas TURBINES for engine condition monitoring, *Proceedings Of The Institution of Mechanical Engineers, PART A, Journal of Power and Energy*, Vol 215 No A2, March 2001, pp173-184.
25. Tsalavoutas A., Mathioudakis K., Stamatis A., Smith M., Identifying Faults in the Variable Geometry System of a Gas Turbine Compressor, *ASME Transactions, Journal of Turbomachinery*, Vol.123, January 2001, pp 33-39
24. A.POULIEZOS, G.STAVRAKAKIS, K.MATHIOUDAKIS, On-Line Leak Monitoring in Fluid Pumping Systems. *International Journal of Modeling and simulation*, Vol 20, No,3, 2000, pp 213-220
23. K. MATHIOUDAKIS, E. POLITIS, A. STAMATIS, A computer model as an educational tool for gas turbine performance. *International Journal of Mechanical Engineering Education*, Vol 27, No 2, April 1999, pp 113-125
22. N. ARETAKIS, K. Mathioudakis: « Classification of Radial Compressor Faults using pattern recognition techniques», *Control Engineering Practice*, 6 (1998), pp 1217-1223
21. N. ARETAKIS, K. MATHIOUDAKIS, V. DEDOUISSIS: «Derivation of signatures for faults in gas turbine compressor blading», *Control Engineering Practice*, 6 (1998), pp 969-974
20. A. STAMATIS, N. Aretakis, K. MATHIOUDAKIS: « Blade fault recognition Based on Signal Processing and Adaptive Fluid Dynamic Modelling», *Journal of Engineering for Gas Turbines and Power*, Vol 120, July 1998, pp 543-549
19. DOUKELIS A., FOUNTI M., MATHIOUDAKIS K., PAPAILIOU K.: "Evaluation of Beam Refraction Effects in a 3-D LDA System for Turbomachinery Applications", *Measurement Science and Technology*, Vol. 7, No 6, June 1996, pp 922-931.
18. N. ARETAKIS, K. MATHIOUDAKIS: "Wavelet analysis for gas turbine fault diagnostics" *ASME Journal of Engineering for Gas Turbines and Power*, Vol 119, October 1997,
17. G. SIEROS, A. STAMATIS, K. MATHIOUDAKIS, Jet Engine Component Maps for Performance Modeling and Diagnostics *AIAA Journal of Propulsion and Power*, Vol 13, No5, September-October 1997
16. DEDOUISSIS V., MATHIOUDAKIS K., PAPAILIOU K.: "Numerical Simulation of Blades Fault Signatures from Unsteady Wall Pressure Signals", *Journal of Engineering for Gas Turbine and Power*, Vol 119, April 1997, pp 362-369
15. MATHIOUDAKIS K., STAMATIS A.: "Com-pressor Fault Identification from Overall Performance Data Based on Adaptive Stage Stacking" *Journal of Engineering for Gas Turbine and Power*, ASME, vol.116, No 1, January 1994, pp 156-164
14. LOUKIS E., MATHIOUDAKIS K., PAPAILIOU K.D.: "Optimising Automated Gas Turbine Fault Detection Using Statistical Pattern Recognition", Paper 92-GT-29, presented at the 37th ASME International Gas Turbine and Aeroengine Congress and Exposition, June 1-4, 1992, Köln Messe, Cologne, Germany. *Journal of Engineering for Gas Turbine and Power*, ASME, vol.116, No 1, January 1994, pp 165-171
13. LAMBIRIS B., MATHIOUDAKIS K., STAMATIS A., PAPAILIOU K.D.: "Adaptive Modelling of Jet Engine Performance with Application to Condition Monitoring", Paper presented in 1991 ISABE Conference, Nottingham. Revised version in *AIAA Journal of Propulsion and Power*, Vol.10, No6, Nov-Dec 1994, pp 890-896
12. LOUKIS E., MATHIOUDAKIS K., PAPAILIOU K.D.: "A Procedure for Automated Gas Turbine Blade Fault Identification Based on Spectral Pattern Analysis". *Journal of Engineering for Gas Turbines and Power*, ASME, vol.114, No 2, April 1992, pp.201-208 (also paper 91-GT-259).

11. STAMATIS A., MATHIOUDAKIS K., PAPAILIOU K.D.: "Optimal Measurements and Health Indices Selection for Gas Turbine Performance Status and Fault Diagnosis". *Journal of Engineering for Gas Turbines and Power*, ASME, vol.114, No 2, April 1992, pp.209-216.
10. MATHIOUDAKIS K., PAPANATHANASIOU A., LOUKIS E., PAPAILIOU K.D.: "Fast Response Wall Pressure Measurement as A Means Of Gas Turbine Blade Fault Identification" (ASME Paper 90-GT-341). *Journal of Engineering for Gas Turbines and Power*, Vol.113, April 1991, pp. 269-275.
9. STAMATIS A., MATHIOUDAKIS K., BERIOS G., PAPAILIOU K.: Jet Engine Fault Detection with Differential Gas Path Analysis at Discrete Operating Points. Proceedings of the 9th International Symposium on Air Breathing Engines (ISABE), Athens, Greece, September 1989. *Journal of Propulsion and Power*, Vol. 7, No 6, Nov./Dec. 1991, pp. 1043-1048.
8. STAMATIS A., MATHIOUDAKIS K., PAPAILIOU K.: Adaptive Simulation of Gas Turbine Performance. *Journal of Engineering for Gas Turbines and Power*, Vol. 112, No 2, April 1990, pp.168-175. (ASME Paper 89-GT-205).
7. MATHIOUDAKIS K., LOUKIS E., PAPAILIOU K.: Casing Vibration and Gas Turbine Operating Conditions. *Journal of Engineering for Gas Turbines and Power*, Vol. 112, No 4, October, 1990, pp.478-485. (ASME Paper 89-GT-78).
6. ΜΑΘΙΟΥΔΑΚΗΣ Κ., ΜΠΑΣΟΥΛΗΣ Γ., ΚΙΟΥΣΗΣ Π.: Υπολογιστική Προσομοίωση Λειτουργίας Στροβιλοαντι-δραστηρων. *Τεχνικά Χρονικά, Επιστημονική Έκδοση ΤΕΕ, Β, Τόμος 9, τεύχος 1, Ιαν-Μαρτ 1989. (Στοιχείο Α22)*
5. ΜΑΘΙΟΥΔΑΚΗΣ Κ.: Διάγνωση Βλαβών Αεριο-στροβίλων. Η Περίπτωση υπερβολικών ακτινικών διακένων. *Τεχνικά Χρονικά, Επιστημονική Έκδοση ΤΕΕ, Β, Τόμος 8, τεύχος 4, Οκτ-Δεκ 1988.*
4. MATHIOUDAKIS, K., BREUGELMANS, F.: "Three -Dimensional flow inside deep rotating stalls of an axial flow compressor", *Journal of Propulsion and Power, AIAA, Vol.4, No 3, May June 1988.*
3. MATHIOUDAKIS, K., BREUGELMANS, F.: "Use of triple hot-wires to measure unsteady flows with large direction changes", *J. Physics E. Sci. Inst. Vol. 18, May 1985, pp 414-419.*
2. BREUGELMANS, F., MATHIOUDAKIS, K., CASALINI, E.: "Rotating stall cells in a low speed axial flow compressor", *AIAA Journal of Aircraft, Vol. 22, No 3, March 1985, pp 175-181*
1. LIGRANI, P.M., GYLES, B.R., MATHIOUDAKIS, K., BREUGELMANS, F.: "A sensor for flow measurements near the surface of a compressor blade", *J. Physics E., Sci. Inst. Vol.16, No 5, May 1983, pp 431-437.*