



Assistant Professor Dr **Dimitrios Missirlis** graduated from the Department of Mechanical Engineering of Aristotle University of Thessaloniki, Greece in 2000 from where he was also awarded his PhD, in 2005, specializing in computational and experimental heat transfer and fluid mechanics focusing on the field of optimization of heat exchangers for aero engine applications. From 2005 to 2014, he has been working as a Senior Researcher in the Laboratory of Fluid Mechanics and Turbomachinery of Mechanical Engineering Department in Aristotle University of Thessaloniki. Since March 2014 he has been appointed as an Assistant Professor in the Department of Mechanical Engineering (TE) in the Technological Education Institute of Central Macedonia in Serres, Greece in the field of Heat Transfer. His research activities are focused on the optimization of the operation of heat exchangers mainly for aero engine applications with the use of experimental and computational methods, aiming at efficiency improvement and the reduction of fuel consumption and pollutants. His research interests include experimental and computational fluid mechanics and heat transfer, heat exchangers, aero engines, porous media, metal foams, turbomachinery applications and aerodynamics. His skills include very good knowledge of CFD modelling programs (Ansys/Fluent, Ansys/Fluent, Numeca/Fine Turbo). Dimitrios Missirlis has co-supervised a number of theses and has 22 scientific publications in international journals, 22 presentations in international conferences and 10 presentations in national conferences with a total of more than 100 citations.

Field of expertise: Heat exchangers, heat transfer, experimental and computational fluid mechanics, aero engines thermodynamic analysis, porous media, aerodynamics, energy conversion

Lectures in TEI of Central Macedonia: Heat transfer, Gas turbines, Industrial Cooling, Heat ventilation and air-conditioning, fluid mechanics I (lab) and II, Natural Processes Methods, Advances in Heat transfer (MSc), Energy Conversion (MSc)

Participation in Research Projects:

- 09.2000-04.2004 - Advanced exhaust gas recuperator technology for aero-engine applications (AEROHEX)
- 12.2005-01.2006 v- Geothermal Heat Pump For Cooling And Heating Along European Coastal Areas (GEOCOOL)
- 04.2007 - 05.2007 - Assessment of options for CO₂ capture and Geological sequestration
- 05.2006–04.2011 - New aero engine core concepts (NEWAC)-Επιτροπή Ερευνών Α.Π.Θ.
- 10.2011–9.2015 -Low Emissions Core-Engine Technologies (LEMCOTEC)
- 9.2013-10.2015 Hellenic Civil Unmanned Air Vehicle – HCUAV, Competitiveness & Entrepreneurship – SYNERGASIA 2011

Journal publications:

1. D. Missirlis, K. Yakinthos, A. Palikaras, K. Katheder, A. Goulas, 2005. Experimental and numerical investigation of the flow field through a heat exchanger for aero-engine applications, Int. J. of Heat and Fluid Flow, vol. 26, pp. 440–458.
2. D. Missirlis, K. Yakinthos, P. Storm, A. Goulas, 2007. Modeling pressure drop of inclined flow through a heat exchanger for aero-engine applications, Int. J. of Heat and Fluid Flow, vol. 28, pp. 512–515.
3. Kyros Yakinthos, Dimitris Missirlis, Achilles Palikaras, Paul Storm, Burkhard Simon, Apostolos Goulas, 2007. Optimization of the design of recuperative heat exchangers in the exhaust nozzle of an aero engine, Applied Mathematical Modelling, 31, pp. 2524-2541

4. Dimitrios Tsinoglou, Grigorios Koltsakis, Dimitrios Missirlis, Kyros Yakinthos, 2004. Modelling of flow distribution during catalytic converter light-off, *Int. J. Vehicle Design*, vol. 34, No.3, pp. 231-259.
5. D.N.,Tsinoglou, G.C.,Koltsakis, D.K.,Missirlis, K.J.,Yakinthos, 2004. Transient modelling of flow distribution in automotive catalytic converters, *Applied Mathematical Modelling*, vol. 28, pp. 775-794.
6. C. Albanakis, K. Yakinthos, K. Kritikos, D. Missirlis, A. Goulas, P. Storm, 2009. The effect of heat transfer on the pressure drop through a heat exchanger for aero engine applications, *Applied Thermal Engineering*, 29, 634-644.
7. C. Albanakis, D. Missirlis, N. Michailidis , K. Yakinthos, A. Goulas, H. Omar, D. Tsipas, B. Granier, 2009. Experimental analysis of the pressure drop and heat transfer through metal foams used as volumetric receivers under concentrated solar radiation, *Experimental Thermal and Fluid Science* 33, 246–252.
8. Athanasios Sideridis, Dimitrios Koutsonikolas, Dimitrios Missirlis, Savas Topis, Sotiris Kaldis,George Skodras and George Sakellaropoulos, 2008. Computational fluid dynamics study on the decomposition of ammonia in a selective porous membrane, *Chemical Product and Process Modeling*, Vol. 3, Issue 1, Article 42
9. K. Kritikos, C. Albanakis, D. Missirlis, Z. Vlahostergios, A. Goulas, P. Storm, Investigation of the thermal efficiency of a staggered elliptic-tube heat exchanger for aeroengine applications, *Applied Thermal Engineering* 30 (2010) 134–142
- 10.G. Martinopoulos, D. Missirlis, G.Tsilingiridis, K. Yakinthos and N. Kyriakis, CFD Modeling Of A Polymer Solar Collector, *Renewable Energy* 35 (2010) 1499–1508
- 11.D. Missirlis , S. Donnerhack, O. Seite, C. Albanakis , A. Sideridis, K. Yakinthos, A. Goulas, Numerical development of a heat transfer and pressure drop porosity model for a heat exchanger for aero engine applications, *Applied Thermal Engineering* 30 (2010) 1341-1350
- 12.N. Michailidis, F. Stergioudi, H. Omar, E. Pavlidou, D.N. Tsipas, C. Albanakis, D. Missirlis, B. Granier, Microstructural characterization of oxide morphologies on Ni and Inconel foams exposed to concentrated solar radiation, *Journal of Alloys and Compounds* 496 (2010) 644–649
- 13.J. Aidarinis, D. Missirlis, K. Yakinthos, A. Goulas, CFD modelling and lda measurements for the air-flow in an aero-engine front bearing chamber, *Journal of Engineering for Gas Turbines and Power* (Vol.133, Iss.8) DOI: 10.1115/1.4002830
- 14.Marilena Kyriakou, Dimitrios Missirlis, Kyros Yakinthos, Numerical modeling of the vortex breakdown phenomenon on a delta wing with trailing edge jet control, *Int. J. of Heat and Fluid Flow* vol. 31 (2010) 1087–1095
- 15.D. Missirlis, M. Flouros , K. Yakinthos, Heat transfer and flow field investigation of a heat exchanger for aero engine applications, 2011, *Int.J.of Heat and Technology* 29 (2) , pp. 57-64
- 16.K. Yakinthos, D. Missirlis, A. Sideridis, Z. Vlahostergios, O. Seite, A. Goulas, Modelling the operation of a system of recuperative heat exchangers for an aero engine with the combined use of a porosity model and a thermo mechanical model, *Engineering Applications of Computational Fluid Mechanics*, Vol. 6., No.4, pp. 608-621 (2012)
- 17.Z. Vlahostergios, D. Missirlis, K. Yakinthos, A. Goulas, Computational modeling of vortex breakdown control on a delta wing, *International Journal of Heat and Fluid Flow* 39 (2013) 64–77
- 18.N. Michailidis, F.Stergioudi, H.Omar, D.Missirlis, Z.Vlahostergios, S.Tsipas, C.Albanakis, B. Granier, Flow, thermal and structural application of Ni-foam as volumetric solar receiver, *Solar Energy Materials & SolarCells* 109(2013)185–191
- 19.K.-D. Bouzakis, F. Klocke, A. Tsouknidas, S. Kombogiannis, D. Missirlis, Z. Vlahostergios, A. Sideridis, K. Yakinthos, A. Tzevelekis, G. Stabliev, S. Bolz, Development of a ball valve with

- PVD-coated Metal-to-Metal sealing mechanism, *Journal of the Balkan Tribological Association* Vol. 18, No 3, 390–404 (2012)
20. D. Missirlis, G. Martinopoulos, G. Tsilingiridis, K. Yakinthos and N. Kyriakis, Investigation of the heat transfer behaviour of a polymer solar collector for different manifold configurations, *Renewable Energy* 68 (2014) 715-723
21. Z. Vlahostergios, D. Missirlis, M. Flouros, C. Albanakis, K. Yakinthos, Effect of turbulence intensity on the pressure drop and heat transfer in a staggered tube bundle heat exchanger, *Experimental Thermal and Fluid Science* 60 (2015) 75–82
22. A. Goulas, S. Donnerhack, M. Flouros, D. Missirlis, Z. Vlahostergios, K. Yakinthos, Thermodynamics Cycle Analysis, Pressure Loss, and Heat Transfer Assessment of a Recuperative System for Aero-Engines, *J. Eng. Gas Turbines Power*. 2015; 137(4) GTP-14-1470

International Conferences:

1. Kyros J. Yakinthos, Dimitris K. Missirlis, Achilles C. Palikaras, Apostolos K. Goulas, Heat exchangers for aero engine applications, IMECE2006-13667, Proceedings of IMECE 2006, ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006, Chicago, Illinois USA.
2. J. Seume, F. Herbst, D. Missirlis, K. Yakinthos, A. Goulas, 2006, Numerical modelling of the unsteady interaction between probe and flow in axial turbomachinery, The XVIII Symposium on Measuring Techniques in Turbomachinery - Transonic and Supersonic Flow in Cascades and Turbomachines, Thessaloniki, GREECE, 21- 22 September, 2006.
3. Athanasios Sideridis, Dimitris Koutsonikolas, Dimitrios Missirlis, Savas Topis, Sotiris Kaldis, George Skodras and George Sakellaropoulos, 2008. Computational fluid dynamics study on the decomposition of ammonia in a selective porous membrane, Computer Aided Process Engineering Forum 7-8 February 2008, Thessaloniki, Greece (Powerpoint presentation)
4. F. Klocke, C. Gorgels, E. Bouzakis, D. Missirlis, K. Yakinthos, Experimental investigation and computational fluid dynamics modelling of micro blasting of coated cutting tools, Proceedings of the 7th International Conference "THE" Coatings in Manufacturing Engineering, 1-3 October 2008, Chalkidiki, Greece.
5. Savas Topis, Dimitris Koutsonikolas, Athanasios Sideridis, Dimitrios Missirlis, Sotiris Kaldis, George Skodras and George Sakellaropoulos, CFD study in a selective porous CMR for NH₃ decomposition, Post ICIM10 Symposium, Catalytic Membrane Reactors in Mt. Fuji, Gotemba, Shizuoka, Japan, August 22-24, 2008 (Poster presentation)
6. Kyros Yakinthos, Stefan Donnerhack, Dimitrios Missirlis, Olivier Seite, Paul Storm, Derivation of an anisotropic model for the pressure loss through a heat exchanger for aero engine applications, Proceedings of ASME Turbo Expo 2009: Power for Land, Sea and Air, GT2009, June 8-12, 2009, Orlando, Florida, USA
7. C. Albanakis, D. Missirlis, P. Storm, K. Yakinthos, A. Goulas, Experimental investigation of the effect of heat transfer on pressure drop for a heat exchanger for aero engine applications, ExHFT-7 : 7th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, 28 June – 03 July 2009, Krakow, Poland
8. Marilena Kyriakou, Dimitrios Missirlis, Kyros Yakinthos, Numerical modeling of the vortex breakdown phenomenon on a delta wing with trailing edge jet control, Conference on Modelling Fluid Flow (CMFF'09) : The 14th International Conference on Fluid Flow Technologies, Budapest, Hungary, September 9-12, 2009 (Selected paper from CMFF'09 for publication in *Int. J. of Heat and Fluid Flow*)
9. D. Missirlis, O. Seite, S. Donnerhack, K. Yakinthos, Heat and Fluid Flow investigations on a heat exchanger for aero engine applications, ISABE 2009 : 19th ISABE Conference, September 7-11, 2009 Montreal, Canada

10. Vlahostergios Z., Missirlis D., Yakinthos K., Application of turbulence modeling on delta wing vortex breakdown control, 3rd GACM Colloquium on Computational Mechanics, 21-23 September 2009 Hannover, Germany (Powerpoint presentation)
11. Dimitrios Missirlis, Kyros Yakinthos, Olivier Seite, Apostolos Goulas, Modeling an installation of recuperative heat exchangers for an Aero engine, GT2010-22263, Proceedings of ASME Turbo Expo 2010: Power for Land, Sea and Air, GT2010, June 14-18, 2010, Glasgow, UK
12. J. Aidarinis, D. Missirlis, K. Yakinthos, A. Goulas, CFD modelling and Ica measurements for the air-flow in an aero-engine front bearing chamber, GT2010-23294, Proceedings of ASME Turbo Expo 2010: Power for Land, Sea and Air, GT2010, June 14-18, 2010, Glasgow, UK (Selected paper from ASME GT2010 for publication in Journal of Engineering for Gas Turbines and Power)
13. K. Yakinthos, D. Missirlis, O. Seite, Z. Vlahostergios, A. Goulas, Modeling the operation of a heat exchanger for aero engine applications for real engine operating conditions, 8th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements, 9 - 11 June 2010, Marseille, France
14. D. Missirlis, K. Yakinthos, M. Flouros, Z. Vlahostergios, A. Goulas, Flow field and heat transfer investigations in the exhaust nozzle of a recuperative aero engine, The Future of Gas Turbine Technology 5th International Gas Turbine Conference, 27-28 October 2010, Brussels, Belgium
15. D. Missirlis, K. Yakinthos, A. Goulas, Z. Vlahostergios, S. Donnerhack, O. Seite, M. Flouros, Hot Nozzle Optimization and Heat Exchanger Loss Modelling, European Workshop on New Aero Engine Concepts, Munich, 30 June-1 July 2010
16. Nikolaos Michailidis, Fani Stergioudi, Omar Haidar, Dimitrios Missirlis, Christos Albanakis, Pandora Psyllaki, Sofia Tsipas, Zinon Vlahostergios, Bernard Granier, Application Of Ni-Foam As Volumetric Solar Receiver: Flow, Thermal And Microstructural Evaluation, SOLARPACES 2010, The CSP Conference: Electricity, Fuels and Clean Water from Concentrated Solar Energy
17. G. Martinopoulos, D. Missirlis, G. Tsilingiridis, K. Yakinthos and N. Kyriakis, Investigation of the heat transfer behaviour of a novel polymer solar collector, Third International Conference on Applied Energy - 16-18 May 2011 - Perugia, Italy
18. K.-D. Bouzakis, F. Klocke, A. Tsouknidas, S. Kombogiannis, D. Missirlis, Z. Vlahostergios, A. Sideridis, K. Yakinthos, A. Tzevelekis, G. Stabliev, S. Bolz, Development of a ball valve with PVD coated metal-to-metal sealing mechanism, Proceedings of the 4th International Conference on Manufacturing Engineering (ICMEN), 3-5 October 2011, Thessaloniki, Greece.
19. E. Dimitriadis, D. Missirlis, G. Martinopoulos, INVESTIGATION OF THE PERFORMANCE OF A HORIZONTAL AXIS WIND TURBINE WITH THE USE OF BLADE ELEMENT MOMENTUM THEORY AND CFD COMPUTATIONS, EWEA 2014, Barcelona, Spain: Europe's Premier Wind Energy Event
20. A. Goulas, S. Donnerhack, M. Flouros, D. Missirlis, Z. Vlahostergios, K. Yakinthos, Thermodynamics Cycle Analysis, Pressure Loss, and Heat Transfer Assessment of a Recuperative System for Aero-Engines, GT2014-26010, Proceedings of ASME Turbo Expo 2014: Turbine Technical Conference and Exposition GT2014 June 16 - 20, 2014, Düsseldorf, Germany
21. Salpingidou Christina, Missirlis Dimitris and Yakinthos Kyros, COMPUTATIONAL FLOW ANALYSIS AND DEVELOPMENT OF A SURROGATE MODEL FOR THE PREDICTION OF THE FLUID FLOW AND THE 3D FLOW EFFECTS AROUND A PROPELLER, 8th GRACM International Congress on Computational Mechanics Volos, 12 July - 15 July 2015
22. K. Yakinthos, D. Missirlis, Z. Vlahostergios, M. Flouros, S. Donnerhack, A. Goulas, BEST STRATEGIES FOR THE DEVELOPMENT OF A HOLISTIC POROSITY MODEL OF A HEAT

EXCHANGER FOR AERO ENGINE APPLICATIONS, GT2015-42408, Proceedings of ASME Turbo Expo 2015: Power for Land, Sea and Air GT2015 June 15-19, 2015, Montreal, Canada

National Conferences:

1. Χ. Αλμπανάκης, Κ. Κρητικός, Δ. Μισηρλής, Κ. Υάκινθος, Α. Γούλας, Διερεύνηση εναλλακτικών διατάξεων ψύξης καυσαερίου αεροπορικών κινητήρων, ΡΟΗ 2006, 5η συνάντηση - Ερευνητικές δραστηριότητες στα φαινόμενα ροής ρευστών στην Ελλάδα, Πάτρα 6 Νοεμβρίου 2006.
2. Χ. Αλμπανάκης, Κ. Υάκινθος, Δ. Μισηρλής και Α. Γούλας, Επίδραση της έντασης της τύρβης στην πτώση πίεσης και στη μεταφορά θερμότητας σε εναλλάκτη θερμότητας, ΡΟΗ 2008 6η, Επιστημονική Συνάντηση για τις Ερευνητικές Δραστηριότητες στη Μηχανική Ρευστών στην Ελλάδα, Κοζάνη, 28 Νοεμβρίου, 2008.
3. Ε. Μπουζάκης, Δ. Μισηρλής, Κ. Υάκινθος, Πειραματική διερεύνηση και μοντελοποίηση της μικροκοκκοβολής επικαλυμμένων κοπτικών εργαλείων μέσω υπολογιστικής ρευστοδυναμικής, ΡΟΗ 2010, 7ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών, Θεσσαλονίκη, 12-13 Νοεμβρίου, 2010
4. Γ. Μαρτινόπουλος, Δ. Μισηρλής, Κ. Υάκινθος, Γ. Τσιλιγκιρίδης, Ν. Κυριάκης, Υπολογιστική μοντελοποίηση πρότυπου επίπεδου ηλιακού συλλέκτη, ΡΟΗ 2010, 7ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών, Θεσσαλονίκη, 12-13 Νοεμβρίου, 2010
5. Δ. Μισηρλής, Κ. Υάκινθος, Μ. Φλούρος, Α. Σιδερίδης, Α. Γούλας, Διερεύνηση πεδίου ροής σε πυρήνα εναλλάκτη θερμότητας για αεροπορικούς κινητήρες, ΡΟΗ 2010, 7ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών, Θεσσαλονίκη, 12-13 Νοεμβρίου, 2010
6. Ζ. Βλαχοστέργιος, Δ. Μισηρλής, Κ. Υάκινθος, Α. Γούλας, Μοντελοποίηση της ροής και έλεγχος της αποδόμησης του ζεύγους δινών σε πτέρυγα δέλτα, ΡΟΗ 2010, 7ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών, Θεσσαλονίκη, 12-13 Νοεμβρίου, 2010
7. Α. Μιχαηλίδης, Δ. Μισηρλής, Ζ. Βλαχοστέργιος, Φ. Στεργιούδη, Ν. Μιχαηλίδης και Α. Γούλας, ΥΠΟΛΟΓΙΣΤΙΚΗ ΚΑΙ ΠΕΙΡΑΜΑΤΙΚΗ ΔΙΕΡΕΥΝΗΣΗ ΑΠΩΛΕΙΩΝ ΠΙΕΣΗΣ ΣΕ ΜΕΤΑΛΛΙΚΟ ΑΦΡΟ, ΡΟΗ 2012 8ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών Βόλος, 16-17 Νοεμβρίου, 2012
8. Ζ. Βλαχοστέργιος, Δ. Μισηρλής, Κ. Υάκινθος και Α. Γούλας, ΥΠΟΛΟΓΙΣΤΙΚΗ ΔΙΕΡΕΥΝΗΣΗ ΤΗΣ ΑΠΟΔΟΜΗΣΗΣ ΤΟΥ ΖΕΥΓΟΥΣ ΔΙΝΩΝ ΣΕ ΠΤΕΡΥΓΑ ΔΕΛΤΑ ΜΕ ΤΗ ΧΡΗΣΗ ΕΝΟΣ ΓΡΑΜΜΙΚΟΥ ΚΑΙ ΕΝΟΣ ΜΗ-ΓΡΑΜΜΙΚΟΥ ΜΟΝΤΕΛΟΥ ΤΥΡΒΗΣ, ΡΟΗ 2012 8ο Πανελλήνιο Συνέδριο για τα Φαινόμενα Ροής Ρευστών Βόλος, 16-17 Νοεμβρίου, 2012
9. Δ. Μισηρλής, Ε. Δημητριάδης, Γ. Μαρτινόπουλος, Δ. Σαγρής και Κ. Δαυίδ, Υπολογιστική μοντελοποίηση ροής και μετάδοσης θερμότητας στον δέκτη παραβολικού συγκεντρωτικού ηλιακού συλλέκτη, 9η Επιστημονική Συνάντηση, Πανελλήνιο Συνέδριο για τα Φαινόμενα Μηχανικής Ρευστών, Αθήνα, 12-13 Δεκεμβρίου, 2014
10. Α. Γούλας, S. Donnerhack, Μ. Flouros, Δ. Μισηρλής, Ζ. Βλαχοστέργιος, Κ. Υάκινθος, ΑΝΑΛΥΣΗ ΘΕΡΜΟΔΥΝΑΜΙΚΟΥ ΚΥΚΛΟΥ, ΑΠΩΛΕΙΩΝ ΠΙΕΣΗΣ ΚΑΙ ΜΕΤΑΔΟΣΗΣ ΘΕΡΜΟΤΗΤΑΣ ΣΕ ΣΥΣΤΗΜΑ ΕΝΑΛΛΑΚΤΩΝ ΘΕΡΜΟΤΗΤΑΣ ΓΙΑ ΑΕΡΟΠΟΡΙΚΟΥΣ ΚΙΝΗΤΗΡΕΣ, 9η Επιστημονική Συνάντηση, Πανελλήνιο Συνέδριο για τα Φαινόμενα Μηχανικής Ρευστών, Αθήνα, 12-13 Δεκεμβρίου, 2014