PennState

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EDUCATION:

Ph.D., Applied Science, Von Karman Institute for Fluid Dynamics/Katholieke Universiteit Leuven, Convective Heat Transfer and Fluid Dynamics, Belgium, 1985

Postgraduate Diploma, Von Karman Institute for Fluid Dynamics, Aerothermodynamics of Turbomachinery, Belgium, 1980

M.S., Mechanical Engineering, Heat Transfer Option, Bosphorus University, Turkey, 1979

B.S., Mechanical Engineering, Technical University of Istanbul, Turkey, 1977

EXPERIENCE:

July 2000-Present	-	Professor of Aerospace Engineering The Pennsylvania State University
July. 2014 to July. 2015	-	Visiting Professor (on sabbatical leave) Istanbul Technical University
Sept. 2007 to Sept. 2008	-	Visiting Professor (on sabbatical leave) Istanbul Technical University
July 1992 to July 2000	-	Associate Professor of Aerospace Engineering The Pennsylvania State University
Apr.1999-July1999	-	Visiting Faculty, Ecole Centrale Lyon, Turbomachinery Laboratory, Lyon, France
Jan. 1999 to April 1999	-	Visiting Faculty, NASA Glenn Research Center, Internal Fluid Mechanics Division, Cleveland, Ohio
1986 to July 1992	-	Assistant Professor of Aerospace Engineering
Summers 1992,93,94	-	Visiting Faculty, Solar Turbines Inc./Caterpillar San Diego, California
Summer 1990,1991	-	Visiting Faculty, NASA Lewis Research Center, Internal Fluid Mechanics Division, Cleveland, Ohio

Summer 1989	-	Visiting Faculty, General Motors Research Laboratories Warren, Michigan
1985-1986	-	Research Associate, Von Karman Institute for Fluid Dynamics, Turbomachinery Department, Belgium
1980-1985	-	Research Fellow, Von Karman Institute for Fluid Dynamics, Turbomachinery Department, Belgium
1979-1980	-	Postgraduate research student, VKI, Belgium

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

ASME (Fellow), AIAA, Sigma Xi, ASEE, SPIE, SAE

HONORS RECEIVED:

One year postgraduate diploma course fellowship by the V.K.I. for Fluid Dynamics (1979-1980);

Von Karman Institute doctoral research fellowship (1981, 1982, 1983, 1984, 1985, 1986);

One year distinguished research fellowship in the Department of Mechanical Engineering and Mechanics, Lehigh University, Pennsylvania (1980-1981);

Invited lecturer/von Karman Institute Lecture Series (1985);

Case-NASA Aerospace R&D Fellowship (1990);

1992 National Fluids Engineering Award (from ASME Fluids Engineering Division);

1993 National Best Paper of the Year Award from the Heat Transfer Division of the ASME;

1993 NASA New Technology Innovator Award, January 1993, NASA Lewis Research Center, Technology Utilization Office, Cleveland, Ohio;

Invited lecturer/von Karman Institute Lecture Series (1996);

Invited Mission Consultant to NATO/AGARD Advisory Group for Aeronautics Research and Development (June 1997);

DOE/SCERDC 1999 Faculty Fellowship;

Visiting Faculty Fellowship from Ecole Centrale Lyon/CNRS, France;

1999 Best Paper Award from the Education Committee of the ASME International Gas Turbine Institute IGTI;

Invited lecturer/von Karman Institute Lecture Series (2004);

Invited Mission Consultant to NATO/RTO (Research & Technology Office) (May 2004);

Invited keynote paper speaker, Turbine2009 Conference, Int. Center for Heat and Mass Transfer, Aug.2009

ASME Fellow (February 2007);

Invited keynote paper speaker, Fan2012 Conference, Senlis, France, May 2012;
Scientific

Scientific Advisory Committee Member, AIAC, 8 th Ankara International Aerospace Conference, September 2015, METU, Middle East Technical University , Dept. of Aerospace Engineering. (http://aiac.ae.metu.edu.tr/)

Scientific Advisory Committee Member, FAN 2015, INTERNATIONAL CONFERENCE ON FAN NOISE, TECHNOLOGY AND NUMERICAL METHODS, Lyon, France. (http://www.fan2015.org/gb/support-committee.html)

Scientific Committee Member, ISROMAC-2016, 16th ISROMAC International Symposium on Transport Phenomenon and Dynamics of Rotating Machinery, to be held in Hawaii, organized by Pacific Center for Flow and Heat Transfer.

Associate Editor, ASME, Journal of Turbomachinery , 2012-2019 (served three terms).

Associate Editor, International Journal of Turbomachinery, Propulsion and Power, IJTPP, 2018-2022

Editorial Board Member , International Journal of Turbomachinery, Propulsion and Power, IJTPP, 2018-2022

CURRENT AREAS OF RESEARCH:

Aerothermodynamics of turbomachinery, analytical and experimental fluid mechanics, heat transfer in air breathing propulsion systems, turbine cooling, turbulent heat flux modelling, heat transfer research in hot/cold cascades, periodic and turbulent heat transfer in unsteady fluid mechanics, finite element strategies for the computation of viscous flow and heat transfer for turbomachinery systems, unsteady augmentation of convective heat transfer in coolant passages, implementation of chiral-nematic liquid crystals in heat transfer research, solid state diode lasers in Doppler velocimetry, digital image processing for heat transfer and unsteady fluid dynamics, fast response instrumentation, particle image velocimetry, turbine tip section heat transfer and film cooling, trailing edge cooling, edge cooling heat transfer, pressure sensitive paints, sand erosion of helicopter blades turbine casing treatment and aerodynamic tip desensitization of axial flow turbines, ducted fan aerodynamics for VTOL UAV systems, non-axisymmetric endwall contouring in axial flow turbines, heat transfer enhancement in cooling passages using vortex generators tip shape aero-thermal optimization of HP turbine blades, ducted fans aerodynamics in VTOL fan-in-wing uninhabited air vehicles

AVAILABLE RESEARCH FACILITIES: (Turbomachinery Aero-Heat Transfer Laboratory)

A Large Scale Rotating Axial Turbine Research Facility, (VTOL) Ducted Fan Research Facility, Heat Transfer Wind Tunnel, High Speed Linear Cascade, Stereoscopic PIV, Subminiature Probe Systems, Five-hole probe calibration system (High Re), Time accurate Pressure&Temperature Instrumentation, Thermographic Liquid Crystal Imaging, Infrared Imaging, Multi-channel Hot Wire Anemometry Systems, High Performance Computing Clusters.

RESEARCH SPONSORS:

NASA Lewis/Glenn Research Center, NSF/National Science Foundation, FAA/Federal Aviation Agency, Dantec Dynamics, Department of Energy, Department of the Army/Army Research Office, Trane Corporation, General Electric Global Research Center, GE Energy, Solar Turbines/Caterpillar, Sikorsky Aircraft Company, VLRCOE/Vertical Lift Research Center of Excellence, Siemens Energy, Pratt&Whitney Aircraft Engines.

LIST OF PUBLICATIONS:

"Flow around helicopter blade tip sections using a 2d particle image velocimeter – part I," (with Kahveci) , manuscript under preparation. To be submitted to Aerospace Science and Technology, Elsevier Inc., April 2019.

"Flow around helicopter blade tip sections using a (3d) stereoscopic particle image velocimeter – part II," (with Kahveci) manuscript under preparation. To be submitted to Aerospace Science and Technology, Elsevier Inc., April 2019.

"Unsteady Flow Structures within a Turbine Rim Seal Cavity in the Presence of Purge Flow, "An Experimental and Computational Unsteady Aerodynamics Investigation" ," (with Averbach and Town) ,"AEROSPACE, MDPI, Special Issue on Secondary Air Systems in Gas Turbine Engines, (ISSN 2226-4310), May 2019, *6* (5), 60; https://doi.org/10.3390/aerospace6050060 . DOWNLOAD

"An Experimental Study of Passage-to-Passage Flow Interactions in a Single Stage Axial Flow Research Turbine Rotor," (with Chakkaravarthy and Kim)," the Proceedings of the ASME Turbo Expo 2019: Turbine Technical Conference and Exposition, GT2019-91629, V02BT40A025; 12 pages, ISBN: 978-0-7918-5856-1, https://doi.org/10.1115/GT2019-91629, June 17-21, 2019, Phoenix, Arizona,USA, DOWNLOAD

"A Genetic Algorithm Based Multi-Objective Optimization of Squealer Tip Geometry in Axial Flow Turbines: A Constant Tip Gap Approach ," (with Maral,Deveci,Alpman and Kavurmacioglu) ,ASME Journal of Fluids Engineering , FE-19-1096 ISSN: 0021-9223 , Feb 2020, 142(2): 021402, https://doi.org/10.1115/1.4044721 . DOWNLOAD

"A Design Strategy for a 6:1 Supersonic Mixed-Flow Compressor Stage ," (with Sadagopan)" Aerospace Science and Technology, Volume 87, April 2019, Pages 265-277 https://doi.org/10.1016/j.ast.2019.02.026 , Elsevier Ltd. , DOWNLOAD

"Viscous Flow and Performance Issues in a 6:1 Supersonic Mixed-Flow Compressor with a Tandem Diffuser". (with Sadagopan) *Aerospace Science and Technology*, Volume 88, May 2019, Pages 9-21, https://doi.org/10.1016/j.ast.2019.02.027, Elsevier Ltd. , DOWNLOAD

"A Genetic Algorithm Based Aerothermal Optimization of Tip Carving for an Axial Turbine Blade " (with Alpman, Maral and Kavurmacioglu), *International Journal of Heat and Mass Transfer*, Elsevier Ltd. , November 2019, https://doi.org/10.1016/j.ijheatmasstransfer.2019.07.069 2019, Elsevier Ltd.

"A Computational Simulation of a Large-scale HP Turbine Rotor Aerodynamics and Comparisons against Turbine Measurements," (with Doshi, Sadagopan, Chakkaravarthy) manuscript in preparation, to be submitted to *International Journal of Turbomachinery, Propulsion and Power*.

"Accuracy Improvements of Phase-Locked Dynamic Total Pressure Measurements and a Novel Figure of Merit for Turbine Aerodynamics Research,", manuscript in preparation with Gohar Khokhar and Veerandra Chakkaravarthy, to be submitted to ASME *Journal of Fluids Engineering* ,December 2018.

"An Aerothermal Study of the Influence of Squealer Width and Height Near a HP Turbine Blade," (with Senel, Maral and Kavurmacioglu)," *International Journal of Heat and Mass Transfer*, Vol. 120 (2018), pp.18-32, https://doi.org/10.1016/j.ijheatmasstransfer.2017.12.017, Elsevier Ltd. , DOWNLOAD

"Casing Grooves to Improve Aerodynamic Performance of a HP turbine Blade," (with Kavurmacioglu,Senel and Maral)," Aerospace Science and Technology, Vol.76 (2018), pp. 194-203, https://doi.org/10.1016/j.ast.2018.01.047, Elsevier Ltd. , DOWNLOAD

"Performance of Partial and Cavity Type Squealer Tip of a HP Turbine Blade in a Linear Cascade," *International Journal of Aerospace Engineering*, Hindawi Limited, 3262164.v2, ISSN: 1687-5966, http:// dx.doi.org/10.1155/2018/ DOWNLOAD

"An Experimental Study of Using Vortex Generators as Tip Leakage Flow Interrupters in an Axial Flow Turbine Stage," (with Chakkaravarthy and Khokhar)," presented and published at the Proceedings of the ASME Turbo Expo 2018: Turbine Technical Conference and Exposition GT2018-76994, June 11-15, 2018, Oslo, Norway, DOWNLOAD

"Aerothermal Optimization of Squealer Geometry In Axial Flow Turbines Using Genetic Algorithim," (with Deveci, Alpman, Senel, Kavurmacioglu and Maral), *Journal of Thermal Engineering*, Vol.4, Issue:3, pp. 1896-1911, http://eds.yildiz.edu.tr/journal-of-thermal-engineering/ContentDetails?Volume=4&IssueNumber=3,2018. DOWNLOAD

"An Investigation of Groove Type Casing Treatment on Aerodynamic Performance of a Linear Turbine Cascade," (with Kavurmacioglu,Senel and Maral)," Proceedings of 12th European Conference on Turbomachinery Fluid dynamics & Thermodynamics ETC 12, http://www.euroturbo.eu/publications/proceedings-papers/etc2017-362/ April 3-7, 2017; Stockholm, Sweden, DOWNLOAD

"Experimental and RANS Numerical Investigation of Unsteady Structures Within the Rim Seal Cavity in the Presence of Purge Mass Flow," (with Town and Averbach),"presented and published at the Proceedings of the ASME Turbo Expo 2016: Turbine Technical Conference and Exposition GT2016-56500, June 13-17, 2016, Seoul, South Korea.

"Aerothermal Performance of Partial and Cavity Squealer Tip in A Linear Turbine Cascade," (with Kavurmacioglu, Senel and Maral),"presented and published at the Conference on Advances in Mechanical Engineering, Istanbul 2016 - ICAME2016 11-13 May 2016, Yildiz Technical University, Turkey.

"A Time Efficient Adaptive Gridding Approach and Improved Calibrations in Five_Hole Probe Measurements," (with Town) published in the Special Issue on, "Advances in

Measurement Techniques for Turbomachinery Flow, Heat Transfer, and Acoustics (AMTT)" by IJRM, *International Journal of Rotating Machinery*, 376967, Vol. (2015).
http://www.hindawi.com/journals/ijrm/2015/376967/

"Factors Influencing Computational Predictibility of Aerodynamic Losses in a Turbine Nozzle Guide Vane Flow," (with Turgut) published in ASME *Journal of Fluids Engineering*, ISSN: 0021-9223, July 2015.
https://fluidsengineering.asmedigitalcollection.asme.org/article.aspx?articleID=2468115

"A Nonaxisymmetric Endwall Design Approach and Its Computational Assessment in the NGV of an HP Turbine Stage," (with Turgut) published in *Aerospace Science and Technology*, August 2015, Elsevier B.V., ISSN: 1270-9638.
http://www.sciencedirect.com/science/article/pii/S1270963815002722

"Lip Separation And Inlet Flow Distortion Control in Ducted Fans Used in VTOL Systems,"(with Akturk) GT2014-26249, Published in the Proceedings and presented at 2014 ASME IGTI International Gas Turbine Conference, June 2014, Dusseldorf, Germany
http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleID=1907259

"A Brief Description of the Ducted Fan Inlet Flow Distortion Reduction Concept, Double-Ducted-Fan (DDF)," (with A.Akturk) paper prepared for the 8 th AIAC, Ankara International Aerospace Conference, Ankara, METU, Middle East Technical University, session : UAV Design and Technologies-1.

"A VTOL-UAV Inlet Flow Distortion Reduction Concept Using A New Flow Control Approach: Double-Ducted-Fan (DDF)," (with Akturk) Research paper prepared for the 16th ISROMAC International Symposium on Transport Phenomenon and Dynamics of Rotating Machinery, to be held in Hawaii, April 2016.
https://psu.box.com/s/s2xfggzr2ulmm0l2sbqxtw09yf89u894

"Inlet Flow Separation Control via Novel Lip-Spoilers For Ducted Fan Based VTOL Uninhabited Aerial Vehicles," (with Herwig & Akturk) Research paper prepared for the 16th ISROMAC International Symposium on Transport Phenomenon and Dynamics of Rotating Machinery, to be held in Hawaii, April 2016.
https://psu.box.com/s/rpyo8cidzubntyu9iclnr326ek8i019l

"Experimental and RANS Numerical Investigation of Unsteady Structures within the Rim Seal Cavity in the Presence of Purge Mass Flow," (with Averbach and Town), ASME paper GT2016-56500, prepared for the ASME 2016 International Gas Turbine Conference, IGTI 2016.
to be held in Seoul, 13-17 June 2016, South Korea,
https://psu.box.com/s/6vebk9yst7ump33fpoa3uc9thegt3qge

"Tip Clearance Investigation of a Ducted Fan Used in VTOL UAVs, Part 1: Baseline Experiments and Computational Validation," (with Akturk) *ASME Journal of Turbomachinery*, Vol. 136, No. 2, pp.021004-1,021004-10, ISSN 0889-504X, February 2014.

"Tip Clearance Investigation of a Ducted Fan Used in VTOL UAVs, Part 2: Novel Treatments via Computational Design and Their Experimental Verification," (with Akturk) *ASME Journal of Turbomachinery*, Vol. 136, No. 2, pp.021005-1,021005-9, ISSN 0889-504X, February 2014.

"Vortex Shedding from a Ground Tracking Radar Antenna and 3D Tip Flow Characteristics," (with Gumusel) *Progress in Computational Fluid Dynamics*, Inderscience Publications, Vol.13, No.5, pp:263-269, ISSN 1468-4349, 2013.

"Influence of Leading Edge Fillet and Nonaxisymmetric Contoured Endwall on Turbine NGV Exit Flow Structure and Interactions With the Rim Seal Flow
," (with Turgut) GT2013-95843, ASME International Gas Turbine Congress, ASME/IGTI 2013, held in San Antonio, Texas, June 2013.

A U.S. PATENT, "Double Ducted Fan," (with Akturk) U.S.Patent & Trademark Office , US 2011/0217163 A1.

A PATENT DOCUMENT, "High Resolution Temperature Sensing Device, Capteur de Temperature a Haute Resolution," (with Smilo, Glezer, Lindsey, Moon, Marvin, Mink, Rohy, Shrank) CA 2156204 G01J5/08/02/04, Canadian Intellectual Property Office, March 1996.

"Experimental Investigation and Computational Evaluation of Contoured Endwall and Leading Edge Fillet Configurations in a Turbine NGV," (with Turgut) GT2012-69304, ASME International Gas Turbine Congress, ASME/IGTI 2012, Copenhagen, Denmark, June 2012.

"Computational Validation of the Flow Through a Turbine Stage and the Effects of Rim Seal Cavity Leakage on Secondary Flows," (with Turgut) GT2012-69306, ASME International Gas Turbine Congress, ASME/IGTI 2013, Copenhagen, Denmark, June 2012.

"Total Pressure Correction of a Sub-Miniature Five-Hole Probe in Areas of Pressure Gradients," (with Town) GT2012-69280, ASME International Gas Turbine Congress, ASME/IGTI 2012, Copenhagen, Denmark, June 2012.

"Inlet Flow Distortion and Lip Separation Control in Ducted Fans, Double Ducted Fan (DDF) as a Novel Lip Separation Control Concept," (with Akturk), Proceedings of Fan2012 Conference, invited keynote paper, Senlis (France), 18-20 April 2012.

"Experimental and Computational Assessment of a Ducted Fan Rotor Flow Model," (with Akturk), AIAA Journal of Aircraft, Vol.49, No.3, pp.885-897, ISSN 0021-8669, May-June 2012.

"A Computational Validation of Turbine Nozzle Guide Vane Aerodynamic Experiments in an HP Turbine Stage," (with Turgut) ASME/IMECE2011-64352, ASME International Mechanical Engineering Congress and Exposition, Denver, Colorado, November 2011.

"A Non-axisymmetric Endwall Design Methodology for Turbine Nozzle Guide Vanes and its Computational Fluid Dynamics Evaluation," (with Turgut) ASME/IMECE2011-64362, ASME International Mechanical Engineering Congress and Exposition, Denver, Colorado, November 2011.

"Experimental and Computational Tip Clearance Investigation of a Ducted Fan Used in VTOL UAVS for Hover Conditions," (with Akturk) GT-46356 presented at the IGTI 2011 ASME International Gas Turbine Conference, Vancouver, Canada, 6-10 June 2011.

"Tip Clearance Investigation of a Ducted Fan Used in VTOL UAVS: Part 2—Novel Treatments via Computational Design and Their Experimental Verification ," (with Akturk) GT-46359 presented at the IGTI 2011 ASME International Gas Turbine Conference, Vancouver, Canada, 6-10 June 2011.

"A Computer-Controlled Mechanical Arm for Improved Time-Efficient Calibration of Subminiature Five Hole Probes," (with Town) GT-46391 to be presented at the IGTI 2011 ASME International Gas Turbine Conference, Vancouver, Canada, 6-10 June 2011.

"Heat Transfer Investigation Around the Film-Cooled Leading Edge of a High-Pressure Gas Turbine Rotor Blade by Artificial Neural Networks," (with Gumusel and Toprak), GT-46340 to be presented at the IGTI 2011 ASME International Gas Turbine Conference, Vancouver, Canada, 6-10 June 2011.

"A Computational and Experimental Analysis of a Ducted Fan Used in VTOL UAV Systems," (with Akturk) ETC European Turbomachinery Conference, Istanbul, Turkey, March 21-25, 2011.

"Casing Convective Heat Transfer Coefficient and Reference Free-stream Temperature Determination near an Axial Flow Turbine Rotor," (with Gumusel) the Transactions of the ASME, Journal of Heat Transfer, Vol.133, No.1, pp:128: 136, February 2011.

"Temperature and Heat Transfer Measurements in Aerospace Engineering," an ***invited chapter/section*** in the Encyclopedia of Aerospace Engineering, ISBN: 978-0-470-75440-5 John Wiley & Sons, Inc. UK, pp: 1432-1439**,** December 2010.

"Axial Flow Fan Tip Leakage Flow Control Using Tip Platform Extensions," (with Akturk) Trans. of the ASME, Journal of Fluids Engineering , October 2010, Vol. 132, Issue 10, pp:456-464, November 2011.

"Turbine Aero-Heat Transfer Studies in Rotating Research Facilities," Heat Transfer Research, Begell House, Inc. Publishers, Vol. 41, Issue 5, pp: 126-132, November 2010.

"Double Ducted Fan (DDF) as a Novel Ducted Fan Inlet Lip Separation Control Device, " (with Akturk) technical paper presented at the AHS/AIAA/SAE/RAS International Powered Lift Conference IPLC, to be led in Philadelphia, PA, 5-7 October 2010.

"Influence of Tip Clearance and Inlet Flow Distortion on Ducted Fan Performance in VTOL UAVs, " (with Akturk), technical paper presented at the 66th Annual AHS International Forum and Technology Display, Phoenix, AZ, May 11-13, 2010.

"Channel Wing as a Potential VTOL/STOL Aero-Vehicle Concept," (with Gokce) in Recent Patents in Mechanical Engineering, Vol.3, pp.18-31, Bentham Publ. House, UK., January 2010.

"Aerodynamic Drag Characteristics and Shape Design of a Radar Antenna Used for Airport Ground Traffic Control," (with Gumusel) Progress in Computational Fluid Dynamics, Inderscience Publications, ISSN 1468-4349, Vol.10, No.1, pp: 32-39, 2010.

"Experimental Turbine Aero-Heat Transfer Studies in Rotating Research Facilities," *invited keynote paper*, Proceedings of the Turbine 2009 Conference, International Center for Heat and Mass Transfer, held in Antalya, Turkey, 9-14 August 2009.

PIV Measurements and Computational Study of a 5-Inch Ducted Fan for V/STOL UAV Applications," (with Akturk and Shavalikul) presented at the 47th AIAA Aerospace Sci. Meeting and Exhibit , AIAA paper 2009-332, 5-8 January 2009, Orlando, Florida.

"Multi-dimensional Viscous Aero-thermal Flow Computations in Labyrinth Seals of Aircraft Gas Turbines," (with Parlar) manuscript completed, to be submitted to Progress in Computational Fluid Dynamics, Inderscience Publishers, 2010.

"Aero-thermal Aspects of Foil Journal Bearing Development for Gas Turbines", (with Parlar) manuscript completed, to be submitted to Recent Patents in Mech. Eng., Bentham Pub. House, UK, 2010.

"Pressure Side Tip Platform Extensions for Tip Leakage Control in Axial Turbines," (with Shavalikul) submitted to Progress in Computational Fluid Dynamics, Inderscience Publications, ISSN 1468-4349.

"A Comparative Analysis of Pressure Side Extensions for Tip Leakage Control in Axial Turbines," (with Shavalikul) GT2008-50782 presented in 2008 ASME International Gas Turbine Conference, Berlin, Germany, 9-13 June 2008.

"Development of a Tip Leakage Control Device for an Axial Flow Fan," (with Akturk) GT2008-50785 presented in 2008 ASME International Gas Turbine Conference, Berlin, Germany, 9-13 June 2008.

"Pressure Resolution of a PSP Based Measurement System with Non-Linear Intensity Response," (with Dhall) presented at the 6th AIAA Aerospace Sciences Meeting and Exhibit
, AIAA paper 2008-279, 7 - 10 January 2008, Reno, Nevada.

"Tip-Leakage Vortex Minimization in Ducted Axial Fans Using Novel Pressure Side Tip Platform Extensions,"(with Akturk) ***invited paper***, 4. ANKARA International Aerospace Conference AIAC-2007-004, 10-12 September, 2007 - METU, Ankara.

"Determination of Casing Convective Heat Transfer Coefficient and Reference Temperature in the Tip Clearance Region of an Axial Flow Turbine," (with Gumusel), presented at the 2007 ASME International Gas Turbine Conference, Montreal, Canada, 14-17, May 2007.

"Aerodynamic Character of Partial Squealer Tip Arrangements In An Axial Flow Turbine, Part I : Detailed Aerodynamic Field Modifications via Three Dimensional Viscous Flow Simulations

Around Baseline Tip," (with Kavurmacioglu and Dey), "Progress in Computational Fluid Dynamics, Vol.7 , pp:363-373, July 2007.

"Aerodynamic Character of Partial Squealer Tip Arrangements In An Axial Flow Turbine, Part II : Detailed Numerical Aerodynamic Field Visualizations via Three Dimensional Viscous Flow Simulations Around a Partial Squealer Tip," , (with Kavurmacioglu and Dey), "Progress in Computational Fluid Dynamics, Vol.7, pp:374-386, July 2007.

"Pressure Sensitive Paint for Analysis of Film Cooling Effects on a Gas Turbine Blade Tip," (with Dhall and Humber) Proceedings of the 14 th ISME, The Intern. Conf. on Mechanical Engineering in Knowledge Age, paper ref.335, Delhi College of Eng., India, Dec. 2005.

"Aerodynamics of Tip Leakage Flows Near Partial Squealer Rims in an Axial Flow Turbine Stage," (with Kavurmacioglu and Dey) Trans.of the ASME Journal of Turbomachinery, Vol.127, January 2005, pp. 14-24 (In a special edition in memory of B. Lakshminarayana), January 2005

"Aerodynamic Drag And Vortex Shedding Characteristics of a Rotating Airport Radar Antenna Used for Ground Traffic Control," (with Gumusel and Kavurmacioglu) presented at the 11th Intern. Symp. on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-11) held in Honolulu, HI, March 2006.

"Flow Around Helicopter Blade Tip Sections Using A Stereoscopic Particle Image Velocimeter," (with Kahveci)) presented at the 11th Intern. Symp. on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-11) held in Honolulu, HI, March 2006.

"Influence of Casing Roughness on the Aerodynamic Structure of Tip Vortices in an Axial Flow Turbine with Flat Blade Tips : An experimental and computational investigation," (with Rao, Kavurmacioglu, Gumusel) ASME paper GT2006-91011 presented at the ASME International Gas Turbine Congress held in Barcelona, Spain, May 8-11, 2006.

"Beneficial Influence of Casing Roughness on the Aerodynamic Structure of Tip Vortices in an Axial Flow Turbine with Squealer Tips : An experimental and computational investigation," (with Kavurmacioglu, Gumusel, Rao) ASME paper GT2006-91012 presented at the ASME International Gas Turbine Congress to be held in Barcelona, Spain, May 8-11, 2006.

" Visualization of Rotor Endwall, Tip Gap and Outer Casing Surface Flows in a Rotating Axial Turbine Rig, " (with Rao), ASME paper GT2005-68264, presented at the ASME International Gas Turbine Congress held in Reno, Nevada, June 6-9, 2005.

"Heat Transfer, Pressure Loss and Flow Field Measurements Downstream of Staggered Two-Row Circular and Elliptical Pin Fin Arrays," (with Uzol), ASME Transactions, Journal of Heat Transfer," ***(An invited paper for a "Gas Turbine Heat Transfer" special edition edited by Prof. P.M.Ligrani, Associate Editor, Journal of Heat Transfer),*** Vol.127, Issue 5, pp. 458-471, May 2005.

" A Flow Visualization Study of Axial Turbine Tip De-sensitization by Coolant Injection from a Tip Trench," (with Rao), ASME paper IMECE2004-60943, presented at the 2004 ASME International Mechanical Engineering Congress and R&D Expo, November 13-19, 2004, Anaheim, California, USA.

"Axial Turbine Tip De-sensitization by Injection from a Tip Trench, *Part-1 : Effect of Injection Mass Flow Rate*," (with Rao), ASME paper GT2004-53256, presented at the 2004 ASME International Gas Turbine Congress held in Wien, Austria, June 2004.

"Axial Turbine Tip De-sensitization by Injection from a Tip Trench, *Part-2 : Leakage Flow Sensitivity to Injection Location*," (with Rao), ASME paper GT2004-53258, presented at the 2004 ASME International Gas Turbine Congress held in Wien, Austria, June 2004.
"Axial Turbine Tip De-sensitization by Injection from a Tip Trench, *Part-1 : Effect of Injection Mass Flow Rate*," (with Rao), ASME paper GT2004-53256 to be presented at the 2004 ASME IGTI Conference to be held in Vienna, Austria, June 4-17, 2004.

"Axial Turbine Tip De-sensitization by Injection from a Tip Trench, *Part-2 : Leakage Flow Sensitivity to Injection Location,"* (with Rao), ASME paper GT2004-53258 to be presented at the 2004 ASME IGTI Conference to be held in Vienna, Austria, June 4-17, 2004.

"A Turbine Research Facility to Study Tip Desensitization Including Cooling Flows," von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 1-26, ISBN 2-930389-51-6, Brussels.

"Tip Leakage Flow Simulation in AFTRF Blade Passages," (with Kavurmacioglu and Dey) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 27-41, ISBN 2-930389-51-6, Brussels.

"Tip Desensitization of an Axial Turbine Rotor Using Tip Platform Extensions," (with Dey) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 42-62, ISBN 2-930389-51-6, Brussels.

"Tip Desensitization of an Axial Turbine Rotor Using Partial Squealer Rims," (with Dey and Kavurmacioglu)) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 63-84, ISBN 2-930389-51-6, Brussels.

"Simulation of Tip Leakage Flow around Partial Squealer Rims in Axial Turbines," (with Kavurmacioglu and Dey) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 85-101, ISBN 2-930389-51-6, Brussels.

"Injection From A Tip Trench as a Turbine Tip Desensitization Method, *Part 1 : Effect of Injection Mass Flow Rate*," (with Rao) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 102-121, ISBN 2-930389-51-6, Brussels.

"Injection From A Tip Trench as a Turbine Tip Desensitization Method, *Part 2 : Leakage flow sensitivity to injection location*," (with Rao) von Karman Institute Lecture Series VKI-LS 2004-02 Turbine Blade Tip Design and Tip Clearance Treatment, 19-23 January 2004, pp. 122-135, ISBN 2-930389-51-6, Brussels.

"Tip Leakage Flows near Partial Squealer Rims In an Axial Flow Turbine Stage," (with Dey and Kavurmacioglu) ASME paper GT2003-38979, presented at the 2003 ASME IGTI Gas Turbine Congress, Atlanta, Georgia, June 2003 (accepted for publication in ASME Journal of Turbomachinery).

"Forced Convection Heat Transfer Enhancement using a Self-oscillating Impinging Jet," (with Herr) ASME Journal of Heat Transfer, Vol.124, No. 4, pp. 221-232, August 2002. (in printing phase)

"Secondary Flow and Forced Convection Heat Transfer Near Endwall Boundary Layer Fences In A 90° Turning Duct" (with Rizzo) International Journal of Heat and Mass Transfer, Vol.45, No.4, pp.831-843, February 2002.

"Experimental and Computational Visualization and Frequency Measurements of the Jet Oscillation Inside a Fluidic Oscillator," (with Uzol) Journal of Visualization, Vol.888, No.8, pp. 88-88, August 2002

"Aerodynamic Loss Characteristics of a Turbine Blade with Trailing Edge Coolant Ejection: *Part-1 External Aerodynamics, Total Presssure Losses and Predictions*," (with Uzol and Glezer), ASME Journal of Turbomachinery, Vol.123, No.2, pp.238-248, April 2001.

"Aerodynamic Loss Characteristics of a Turbine Blade with Trailing Edge Coolant Ejection: *Part-2 Effect of Cut-back Length, Spanwise Rib Spacing, Chordwise Rib Length, on Discharge Coefficients*" (with Uzol and Glezer), ASME Journal of Turbomachinery, Vol.123, No.2, pp.249-257, April 2001.

"Mainstream Aerodynamic Effects due to Wheel Space Coolant Injection in a High Pressure Turbine Stage, Part -1 Stationary Frame Measurements" (with McLean) ASME Journal of Turbomachinery, Vol.123, No.4, pp. 687-696, October 2001.

"Mainstream Aerodynamic Effects due to Wheel Space Coolant Injection in a High Pressure Turbine Stage, Part -2 Rotational Frame Measurements," (with McLean) ASME Journal of Turbomachinery, Vol.123, No.4, pp. 697-703, October 2001.

"Aerodynamic Tip Desensitization of an Axial Turbine Rotor Using Pressure Side Tip Platform Extensions" (with Dey) ASME paper presented at the 2001-GT-0484, ASME International Gas Turbine Conference, New Orleans, June 2001.

"Elliptical Pin Fin Arrays as an Alternative to Conventional Circular Pin Fin Arrays for Gas Turbine Blade Cooling Applications, *Part-1 Wall Heat Transfer and Pressure Loss*

Characteristics" (with Uzol) ASME paper 2001-GT-0180 presented at the ASME International Gas Turbine Conference, New Orleans, June 2001.

"Elliptical Pin Fin Arrays as an Alternative to Conventional Circular Pin Fin Arrays for Gas Turbine Blade Cooling Applications, *Part-2 Wake Flow Field Measurements and Visualization using Particle Image Velocimetry"* (with Uzol) ASME paper 2001-GT-0181 presented at the, ASME International Gas Turbine Conference, New Orleans, June 2001.

"Forced Convection Heat Transfer Enhancement using a Self-oscillating Impinging Jet," (with Herr) ASME Journal of Heat Transfer, Vol.124, No. 4, pp. 221-232, April 2002.

"Secondary Flow and Forced Convection Heat Transfer Near Endwall Boundary Layer Fences In A 90° Turning Duct" (with Rizzo) the International Journal of Heat and Mass Transfer, Vol.231, No.4, pp.345-357, November 2001.

"Experimental and Computational Visualization and Frequency measurements of the jet Oscillation inside a Fluidic Oscillator," (with Uzol) 4th International Symposium on Particle Image Velocimetry, PIV'01 Paper 1029, Gottingen, Germany, September 17-19, 2001.

"The Effect of Sample Size, Turbulence Intensity and Velocity Field on the Experimental Accuracy of Ensemble Averaged PIV Measurements," (with Uzol) 4th International Symposium on Particle Image Velocimetry, PIV'01 Paper 1096, Gottingen, Germany, September 17-19, 2001.

"An Improved Transient Method for the Simultaneous Determination of Free-stream Reference Temperature and Convective Heat Transfer Coefficient: *The **"Invariant h Method"*** " presented at "Turbine-2000" organized by the ICHMT International Centre for Heat and Mass Transfer, held in Cesme, Turkey, August 2000.

"Implementation of the ***"Invariant h Method"*** in Liquid Crystal Thermometry Based Heat Transfer Research Including Film Cooling" presented at "Turbine-2000" organized by the ICHMT International Centre for Heat and Mass Transfer, held in Cesme, Turkey, August 2000.

"Determination of Optimal Row Spacing for a Staggered Cross-Pin Array in a Turbine Blade Cooling Passage," (with Donahoo, Kulkarni and Belegundu) Journal of Enhanced Heat Transfer, Vol.8, pp:41-53, January 2001.

"Turbulent Flow and Heat Transfer Analysis in a 90 º Turning Duct and Comparisons with Measured Data, *Part 1 : Influence of Reynolds Number and Streamline Curvature on Viscous Flow Development*," (with Kim and Wiedner) International Journal of Rotating Machinery, Vol.8, No.2, pp:109-123, March 2002.

"Turbulent Flow and Heat Transfer Analysis in a 90 º Turning Duct and Comparisons with Measured Data, *Part II Influence of Secondary Flow, Vorticity, Turbulent Kinetic Energy and Thermal Boundary Conditions on Endwall Heat Transfer,*" (with Kim and Wiedner) the International Journal of Rotating Machinery, Vol.8, No.2, pp:124-140, March 2002.

"Aerodynamic Loss Characteristics of a Turbine Blade with Trailing edge Coolant Ejection :

Part-1 External Aerodynamics, Total Presssure Losses and Predictions," (with Uzol and Glezer), ASME 2000-GT-557, presented at the 2000 ASME International Gas Turbine Conference , Munich, Germany, June 2000.

"Aerodynamic Loss Characteristics of a Turbine Blade with Trailing edge Coolant Ejection : *Part-2 Effect of Cut-back Length, Spanwise Rib Spacing, Chordwise Rib Length, on Discharge Coefficients*" (with Uzol and Glezer), ASME 2000-GT-258, presented at the 2000 ASME International Gas Turbine Conference, Munich, Germany, June 2000.

"Development of Turbine Tip Clearance Flow Downstream of a Rotor Blade with Coolant Injection from a Tip Trench," (with Dey) Proceedings of the 8 th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8), pp:572-579, March 2000.

"Analysis of Turbulent Flow and Endwall Heat Transfer in a 90 ^{o} Turning Duct and Comparisons with Measured Data, *Part 1 : Influence of Reynolds Number and Streamline Curvature on Viscous Flow Development*," (with Kim and Wiedner) Proceedings of the 8 th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8), pp: 656-666, March 2000.

"Analysis of Turbulent Flow and Endwall Heat Transfer in a 90 ^{o} Turning Duct and Comparisons with Measured Data, *Part 2 : Influence of Secondary Flow, Vorticity, Turbulent Kinetic Energy and Thermal Boundary Conditions on Endwall Heat Transfer*," (with Kim and Wiedner) Proceedings of the 8 th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8), pp: 643-655, March 2000.

"A Computational Visualization of Three Dimensional Flow and Heat Transfer over a Staggered Array of Pin Fins in a Turbine Coolant Passage " (with Donahoo, Kulkarni and Belegundu) ASME paper 99-GT-257 presented in 1999 ASME International Gas Turbine Conference, Indianapolis, Indiana, June 1999.

"A Student Executed, Industrial Gas Turbine Design Project with an Industrial Deadline, " (with Miller, Glezer and Fox) ASME paper 99-GT-326 presented in 1999 ASME International Gas Turbine Conference, Indianapolis, Indiana, June 1999, an ASME paper submitted to ASME Journal of Turbomachinery.

"Oscillator Fin as a Novel Heat Transfer Augmentation Device for Gas Turbine Cooling Applications," (with Uzol), ASME paper 98-GT-150 presented at the 1998 ASME International Gas Turbine Conference, Stockholm, Sweden, June 1998.

"Oscillator Fin as a Novel Heat Transfer Augmentation Device for Aerospace Cooling Applications," (with Uzol) Invited paper presented at the 1998 Ankara International Aerospace Conference, September 9-11,1998, Turkey, Proceedings of the 2nd Ankara Int. Aerospace Conference, pp.70-81.

"Optimization of Staggered Pin Fin Arrays for Gas Turbine Cooling Applications," (with Donahoo, Kulkarni and Belegundu) ASME paper 98-GT-149, presented at the 1998 ASME International Gas Turbine Conference, Stockholm, Sweden, June 1998.

"Application of Thermochromic Liquid Crystal to Rotating Surfaces," (with Glezer, Owen, Pilbrow and Syson) ASME Transactions, Journal of Turbomachinery, Vol.120, Number 1, January 1998. (Principal Author).

"Liquid Crystal Thermography on the Fluid Solid Interface of Rotating Systems," (with Glezer) the Transactions of the ASME, Journal of Heat Transfer, Vol.119, No.1, pp:20:29, February 1997.

"Heat Transfer Near the Trailing Edge of a Cooled Turbine Blade with Special Emphasis Given to Pressure Side Cut-back Length," (with Iyer) Proceedings of the 3rd ASME-ISHMT Heat and Mass Transfer Conference, pp:829-835, Kanpur, India, (Narosa Publishing House), December 1997.

"Self-Oscillating-Impinging-Jet as a Gas Turbine Cooling Enhancement System," (with Herr) ASME paper 97-GT-330 presented at the 42nd ASME Int. Gas Turbine Conference, Orlando, FL, June 1997.

"Determination of Optimal Row Spacing for a Staggered Pin Fin Array in a Turbine Blade Cooling Passage," (with Donahoo, Kulkarni and Belegundu) Proceedings of the 3rd ASME-ISHMT Heat and Mass Transfer Conference, pp:837-843, Kanpur, India, (Narosa Publishing House), December 1997.

"Passage Flow Structure and Its Influence on Endwall Heat Transfer in a 90 ^{o} Turning Duct : Mean Flow and High Resolution Endwall Heat Transfer Experiments," (with Wiedner) the Transactions of the ASME, Journal of Turbomachinery, Vol.119, No.1, pp:39-50, January 1997.

"An Aero-thermal Investigation of Boundary Layer Fences for use in Turbine Endwall Regions and Internal Coolant Passages," (with Rizzo), a paper presented at the Propulsion Symposium organized by the Ohio Aerospace Institute, October 1997.

"Determination of Convective Heat Flux on State Heat Transfer Surfaces with Arbitrarily Specified Boundaries," (with Wiedner), the Transactions of the ASME, Journal of Heat Transfer,, Vol.118, No.4, pp:1-8, November 1996.

"Design and Development of a Turbine Research Facility to Study Rotor-Stator Interaction Effects," (with Lakshminarayana, Halliwell, Zaccaria) International Journal of Turbo and Jet Engines, Vol. 13, pp. 155-172, 1996. (Co-author)

"Application of Thermochromic Liquid Crystal to Rotating Surfaces," (with Glezer, Owen, Pilbrow and Syson) 1996 ASME International Gas Turbine Conference, Birmingham, UK, ASME paper ASME-96-GT-138, June 1996.

“Passage Flow Structure and Its Influence on Endwall Heat Transfer in a 90 degree Turning Duct : Turbulent Stresses and Turbulent Kinetic Energy Production,” (with Wiedner) ASME paper ASME-96-GT-251, 1996 ASME International Gas Turbine Conference, Birmingham, UK.

“Color Response Modification of Encapsulated Liquid Crystals Used in Rotating Disk Heat Transfer Studies,” (with Glezer) ASME paper 95-GT-439, 1995 ASME International Gas Turbine Conference, Houston, Texas, June 1995.

“Analysis and Quantification of a Solid State Laser Doppler Anemometer,” (with McLean) AIAA Journal, Vol. 33, No. 10, 1995, pp. 1880-1887.

"Application of a Heat Flux/Calorimeter Based Method to Assess the Effect of Turbulence on Turbine Airfoil Heat Transfer," (with Glezer, Moon and Zhang) ASME paper 94-GT-95, 39th ASME International Gas Turbine and Aeroengine Congress held in, The Hague, the Netherlands, June 1994.

"Liquid Crystal Thermography on the Rotating Surfaces of Turbomachinery Systems," a book chapter in “Advanced Turbomachinery Design,” edited by: Chunill Hah, published by Marcel Dekker Inc., N.Y. 10016.

"Liquid Crystal Thermography", a book chapter published for the 1996 von Karman Institute Lecture Series on “Temperature Measurements”, VKI-LS-1996-09, Brussels, April 1996.

"Analysis and Design of a Trailing Edge Cooling System," (with Yavuzkurt) A final research report submitted to Pratt&Whitney GESP,West Palm Beach, Florida, November 1995.

"Airfoil Trailing Edge Cooling Systems," (with Yavuzkurt) A research report submitted to Pratt&Whitney GESP,West Palm Beach, Florida, August 1995.

"Fluid Dynamics and Convective Heat Transfer in Impinging Jets Through Implementation of A High Resolution Liquid Crystal Technique, Part I , Flow and Heat Transfer Experiments," (with Kim) International Journal of Turbo&Jet Engines, Vol.12, pp. 1-12, June 1995.

"Fluid Dynamics and Convective Heat Transfer in Impinging Jets Through Implementation of A High Resolution Liquid Crystal Technique, Part II, Navier Stokes Computation of Impulsively Started Heat Transfer Experiments," (with Kim) International Journal of Turbo&Jet Engines, Vol.12, pp.13-19, June 1995.

"Analysis and Quantification of a Solid State Laser Doppler Anemometer for Fluid Dynamic Research," (with C.McLean), AIAA Journal, Vol. 33, No.10, 1995, pp.1880-1887.

"Validation of an Analytical Model for an Unsteady Planar Jet with Self Sustained Oscillations via Measurements from an Efficient Hot Wire Technique," (with Frank Herr), presented at the 25 th AIAA Fluid Dynamics Conference, AIAA paper 94-2205, Colorado, June 1994.

"Turbulent Transport in a Planar Jet with Self-sustained Deterministic Oscillations, " (with Frank Herr), 1994 ASME Winter Annual Meeting, International Symposium on Unsteady Flows in Aero-propulsion, ASME bound volume AD.40, pp.175-188 , Chicago, November 1994.

"The Effects of a Boundary Layer Fence on the Aerodynamic Flow field and Endwall Heat Transfer in a 90^{o} Turning Square Duct," (with Dean Rizzo), 1994 ASME Winter Annual Meeting, Session : Heat Transfer in Gas Turbines, ASME bound Volume HTD-300, Chicago, November 1994, pp.83-99.

"Passage Flow Structure and Its Influence on Endwall Heat Transfer in a 90^{o} Turbulent Duct Flow : Mean Flow and High Resolution Heat Transfer Experiments," (with B.Wiedner) ASME paper ASME-93-WA/HT-52, presented at the 1993 ASME Winter Annual Meeting, December 1993.

"Fluid Dynamics and Convective Heat Transfer in Impinging Jets Through Implementation of a High Resolution Liquid Crystal Technique," (with K.Kim and B.Wiedner), proceedings of the XI th International Symposium on Air Breathing Engines, held in Tokyo, September 1993.

"Implementation of a Finite Element Procedure, for the Optimization of Cooled Turbine Nozzles," a research report prepared for the Heat Transfer Division of Solar Turbines Inc./Caterpillar, San Diego, California, August 1993.

"Accurate Determination of Local Heat Flux on Steady State Heat Transfer Surfaces with Arbitrarily Specified External and Internal Boundaries," (with B.Wiedner) presented at the 1993 National Heat Transfer Congress, ASME bound volume HTD-Vol.242, pp 21:31, Atlanta, Georgia, August 1993.

"Miniature Laser Doppler Anemometers Using Solid State Laser Diodes," (with C. McLean) presented at the SPIE International Symposium on Lasers, Sensors, Applications, Session : Solid State Lasers IV, Proceedings of the SPIE, Volume 1864 ,16-23 Jan. 1993, LA.

"Evaluation of a Hue Capturing Based Transient Liquid Crystal Method for High Resolution Mapping of Convective Heat Transfer on Curved Surfaces," (with Hippensteele and Poinsatte) the ASME Transactions, Journal of Heat Transfer, Vol.115, No.2, May 1993. **(1993 Best Paper of the year ASME Journal of Heat Transfer/Heat Transfer Division)**

"A Miniature Laser Diode Based Laser Doppler Anemometer for Turbomachinery Flow Measurements," (with C.McLean) Proceedings of the International Symposium on Heat Transfer in Gas Turbine Engines, Int. Centre for Heat and Mass Transfer, Athens, Greece, August 1992.

"Mean Flow/Heat Transfer Similarity and Character of Free Stream Turbulence in a Hot Turbine Cascade," a research report prepared for the Heat Transfer Division of Solar Turbines Inc./Caterpillar, San Diego, California, August 1992.

"A Low Speed, Transient Facility for Propulsion Heat Transfer Studies," (with B.Wiedner) Proceedings of the International Symposium on Heat Transfer in Gas Turbine Engines, Int. Centre for Heat and Mass Transfer, Athens, Greece, August 1992.

"Investigation of Three Dimensional Flow Field in a Turbine Including Rotor/Stator Interaction. Part I:Design Development and Performance of the Research Facility," (with B.Lakshminarayana I.Halliwell and M.Zaccaria) AIAA paper 92-3326, presented at the ASME-AIAA Joint Propulsion Conference, Nashville, Tennessee, July 1992.

"A New Hue Capturing Technique for the Quantitative Interpretation of liquid Crystal Images Used in Convective Heat Transfer Studies," (With Kim and Hippensteele) the Transactions of the ASME, Journal of Turbomachinery, October 1992, vol.114, No.4, pp.765-775.

"Convection Heat Transfer at the Curved Bottom Surface of a Square to Rectangular Transition Duct Using a New Hue Capturing Based Liquid Crystal Technique," (with K.Kim, S.A.Hippensteele and P.E.Poinsatte), presented at the 1991 ASME Winter Annual Meeting, Atlanta, Georgia, December 1991, in the "Fundamental Experimental Measurements in Heat Transfer", ASME bound volume HTD-Vol.179 , edited by: D.E.Beasley and J.L.S.Chen, pp. 7-22.

"Effect of Incidence on Wall Heating Rates and Aerodynamics on a Film Cooled Transonic Turbine Blade," (with T.Arts), the Transactions of the ASME, Journal of Turbomachinery, Vol.113, No.3, pp.493-501, July 1991.

"Penn State Axial Flow Turbine Research Facility: Design Fabrication and Performance, PSU Turbo 9101, (with B. Lakshminarayana, I. Halliwell and M. Zaccaria), January 1991.

"An Experimental Convective Heat Transfer Investigation Around a Film Cooled Gas Turbine Blade," (with T. Arts), the Transactions of the ASME, Journal of Turbomachinery, July 1990, Vol. 112, No.3, pp.497-503.

"A technical report describing a new facility and proposed work on Axial Flow Turbine Research Facility and Broad Outline of Proposed Research", PSU Department of Aerospace Engineering, February 1989.

"A Convective Heat Transfer Study on the Strongly Concave Surface of a Film Cooled Turbine Rotor Blade," (with T.Arts) Proceedings of the 9th AIAA-ISABE Symposium on Air Breathing Engines, Athens, Greece, pp.427-438, September 1989.

"An Experimental and Numerical Investigation of Near Cooling Hole Heat Fluxes on a Film Cooled Turbine Blade," the Transactions of the ASME, Journal of Turbomachinery, Jan. 1989, Vol. 111, No. 1, pp. 63-70.

A technical report describing a new facility and proposed work on "Multi-Stage Compressor Facility" and Broad Outline of Proposed Research, a new research rig, PSU Aerospace Engineering Department, December 1988.

"A Feasibility Study for the Aerodynamics of an Annular Diffuser (Compressor Tail Cone) to be Used in the New 5m Diameter European Cryogenic Wind Tunnel," Research Report to the Turbomachinery Department, Von Karman Institute, May 1986.

"Theoretical and Experimental Investigation of Film Cooling Heat Transfer on a Gas Turbine Blade," Ph.D. Thesis, Von Karman Institute for Fluid Dynamics and University of Leuven, Belgium, May 1985.

"Short Duration Measurements and Numerical Simulation of Heat Transfer Along the Suction Side of a Gas Turbine Rotor Blade,"(with T.Arts), the Transactions of the ASME, Journal of Engineering for Gas Turbines and Power, Oct. 1985, Vol. 107, No. 4, pp. 991-997.

"Experimental Heat Transfer Investigation Around the Film Cooled Leading Edge of a High Pressure Gas Turbine Rotor Blade,"(with T.Arts),the Transactions of the ASME, Journal of Engineering for Gas Turbines and Power, Oct.1985,Vol.107,No.4,pp. 1016-1021.

"Experimental Convective Heat Transfer Investigation Around a Film Cooled High Pressure Turbine Blade," presented at 7th AIAA-ISABE Symposium on Air Breathing Engines, Beijing, China, September 1985.

"Adiabatic Film Cooling Effectiveness from Heat Transfer Measurements in Compressible, Variable-Property Flow,"(with P. M. Ligrani), the Transactions of the ASME, Journal of Heat Transfer, Vol. 107, No. 2, May 1985, pp. 313-320.

"Short Duration Heat Transfer Measurements," a book chapter in "Measurement Techniques in Turbomachines," (with T. Arts) Von Karman Institute Lecture Series 1985-03, February 1985.

"Thin Film Heat Transfer Gauge Construction and Measurement Details," (with P. M. Ligrani and M. S. Grady) Von Karman Institute Technical Memorandum 33, November 1982.

"An Experimental Investigation of a Centrifugal Compressor Inlet Optimization," (with F. A. E. Breugelmans and P. M. Ligrani), A research report to the Turbomachinery Department, Von Karman Institute, April 1982.

"Investigation of Heat Transfer Rates on a Film Cooled Flat Plate with an without a Pressure Gradient," (with P. M. Ligrani and N. Hay) Von Karman Institute Internal Note 68, July 1981.

"Investigation of Heat Transfer Rates on a Film Cooled Flat Plate With and Without a Pressure Gradient," VKI Intern. Note 68, Von Karman Institute for Fluid Dynamics, July 1981.

"An Investigation of Endwall Heating Rates in a Turbine Passage," (with A. Ongoren), Von Karman Institute, PR-81-17, July

LIST OF AEROSPACE ENGINEERING COURSES TAUGHT BY CENGIZ CAMCI SINCE 1986 :

Semester	Course No.	Sec.	Cr.	Title	Class Enroll-ment	Hrs/ Week	Course Asstnce
Fall 86	311	2	4	Aerodynamics I	58	4	1/2 TA
Spring 87	312	1	4	Aerodynamics II	52	4	1/2 TA
Spring 87	312	2	4	Aerodynamics II	66	4	1/2 TA
Fall 87	410	1	3	Aerospace Propulsion	120	3	1/2 TA
Fall 87	417	1	1-3	Aerospace Thesis		10	1
Spring 88	412	1	3	Turbulent Flow	45	3	1/2 TA
Spring 88	312*	1	4	Aerodynamics II	111	4	1/2 TA
Fall 88	410	1	3	Aerospace Propulsion	115	3	1/2 TA
Fall 88	410H	1	3	Aerospace Propulsion	1	3	----
Spring 89	412	1	3	Turbulent Flow	20	3	1/2 TA
Spring 89	412H	1	3	Turbulent Flow	1	3	----
Spring 89	496	1	2	Independent Studies	2	--	----
Spring 89	494H	1	3	Honors Thesis	1	----	
Fall 89	410	1	3	Aerospace Propulsion	58	3	1/2 TA
Fall 89	410	2	3	Aerospace Propulsion	42	3	1/2 TA
Spring 90	494	1	1	Thesis	1	--	----
Spring 90	312	1	4	Aerodynamics II	50	4	1/2 TA
Spring 90	312	2	4	Aerodynamics II	49	4	1/2 TA
Spring 90	312H	1	4	Aerodynamics II	2	1	----
Spring 90	596	1		Independent Studies	1		----
Fall 90	507	1	3	Theory of Turbomachinery	16	3	----
Spring 91	430	1	3	Space Propulsion and Power Systems	52	3	1/2 TA
Fall 91	508	1	3	Foundations of Fluid Mechanics	35	3	----
Spring 92	597-D	1	3	Thermal Aspects of Aerospace Propulsion **(new course)**	9	3	----
Fall 92	508	1	3	Foundations of Fluid Mechanics	25	3	----
Spring 93	312	1	4	Aerodynamics II	80	4	1/2 TA
Spring 93	412	1	3	Turbulent Flow	13	3	----
Spring 93	312	1	4	Aerodynamics II (only first half taught)	80	4	1/2 TA Tea.int.
Fall 93	597-B	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer **(new course)**	12	3	----
Fall 93	410	1	3	Aerospace Propulsion (only five weeks taught)	60	3	1/2 TA
Spring 94	308-H	1	3	Mechanics of Fluids	39	3	1/2 TA
Spring 94		1	3	Independent Studies	1	-	
Spring 94	412	1	3	Turbulent Flow	14	3	----
Fall 94	410	1	3	Aerospace Propulsion	60	3	1/2 TA

Spring 95	412	1	3	Turbulent Flow	8	3	
Spring 95	597-B	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	15	3	----
Spring 95	412	1	3	Turbulent Flow	14	3	----
Fall 95	410	1	3	Aerospace Propulsion	45	3	1/2 TA
Fall 95	405	1	2	Aerodynamics Laboratory (Helped w/ one group)	4	2	1/2 TA
Spring 96	312	1	4	Aerodynamics II	41	4	1/2 TA
Fall 96	410	1	3	Aerospace Propulsion	38	3	1/2 TA
Spring 97	597-B	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	12	3	
Fall 97	508	1	3	Foundations of Fluid Mechanics	19	3	
Spring. 98	430	1	3	Space Propulsion	24	3	
Spring 98	497-B	1	3	Honors Thesis	1	-	
Fall 98	597-B	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	12	3	
Fall 98	097-A	1	1	Aerospace Explorer **(New Freshman seminar)**	11	1	
Fall 99	508	1	3	Foundations of Fluid Mechanics	13	3	
Fall 99	097-A	1	1	Aerospace Explorer (Freshman seminar)	30	1	
Spring 00	412	1	3	Turbulent Flow	18	3	
Spring 00	097-A	1	1	Aerospace Explorer (Freshman seminar)	30	1	
Fall	597-K	1	3	Aero-thermo-mechanical Design of Small Gas Turbine Engines **(New Technical Elective)**	10	3	
Spring 01	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	20	3	
Fall 02	508	1	3	Foundations of Fluid Mechanics	27	3	
Spring 02	507	1	3	Theory and Design of Turbomachinery	11	3	
Fall 02	410	1	3	Aerospace Propulsion	75	3	
Spring 03	412	1	3	Turbulent Flow	27	3	
Spring 03	560	1	3	Finite Element Method	9	3	
Fall 03	508	1	3	Foundations of Fluid Mechanics	20	3	
Spring 04	597K	1	3	Aero-thermo-mechanical Design of Small Gas Turbine Engines	9	3	
Fall 04	508	1	3	Foundations of Fluid Mechanics	18	3	
Spring 05	412	1	3	Turbulent Flow	22	3	
Spring 05	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	11	3	
Fall 05	508	1	3	Foundations of Fluid Mechanics	24	3	
Spring 06	507	1	3	Theory and Design of Turbomachinery	10	3	
Fall 06	508	1	3	Foundations of Fluid Mechanics	19	3	

Spring 07	497-Y	1	3	Propulsion System Design for Un-manned Air vehicles **(new course offered for the first time in Spring 07)**	12	3	
Spring 07	597-Y	1	3	Propulsion System Design for Un-manned Air vehicles (graduate option) **(new course offered for the first time in Spring 07)**	6	3	
Fall 07		1	3	Theory of Turbomachinery (taught at ITU/sabbatical)			
Fall 08	508	1	3	Foundations of Fluid Mechanics	18	3	
Spring 09	507	1	3	Theory and Design of Turbomachinery	10	3	
Spring 09	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	20	3	
Fall 09	508	1	3	Foundations of Fluid Mechanics	24	3	
Spring 10	507	1	3	Theory and Design of Turbomachinery	10	3	
Spring 10	308	1	3	Mechanics of Fluids	26	3	
Fall 10	508	1	3	Foundations of Fluid Mechanics	29	3	
Spring 11	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	18	3	
Fall 2012	597K	1	3	Aero-thermo-mechanical Design of Small Gas Turbine Engines	9	3	
Fall 2012	497K	1	3	Aero-thermo-mechanical Design of Small Gas Turbine Engines	8	3	
Spring 13	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	13	3	
Fall 2013	410	1	3	Aerospace Propulsion	99	3	1/2 TA
Spring 14	430	1	3	Space Propulsion and Power Systems	14	3	
Spring 14	507	1	3	Theory and Design of Turbomachinery	9	3	
Fall 2015	508	1	3	Foundations of Fluid Mechanics	38	3	1/2 TA
Fall 2015	001	1	1	Freshman seminar	30	1	
Spring 16	507	1	3	Theory and Design of Turbomachinery	15	3	
Spring 16	308	1	3	Mechanics of Fluids	27	3	
Fall 16	508	1	3	Foundations of Fluid Mechanics	44	3	½ TA
Spring 17	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	13	3	
Fall 2018	508	1	3	Foundations of Fluid Mechanics	24	3	1/2 TA
Spring 18	507	1	3	Theory and Design of Turbomachinery	15	3	
Fall 2018	508	1	3	Foundations of Fluid Mechanics	33	3	½ TA
Spring 2019	560	1	3	Finite Element Method in Fluid Mechanics and Heat Transfer	12	3	
Fall 2019	508	1	3	Foundations of Fluid Mechanics	27	3	½ TA