Prof. MEHMET HALUK AKSEL

Personal Information

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International Researcher IDs

ScholarID: vnFv-LYAAAAJ

Publons / Web Of Science ResearcherID: AAC-2827-2020

Yoksis Researcher ID: 8810

Education Information

Doctorate, Lehigh University, Engineering Faculty, Departmnt of Mechanics and Mechanical Engineering, United States Of America 1978 - 1981

Postgraduate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 1976 - 1978

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey 1971 - 1976

Foreign Languages

German, A2 Elementary

English, C1 Advanced

Dissertations

Doctorate, A Three-Dimensional Study of the Motion of a Semi-Bounded Compressible Fluid on a Rotating Sphere, Middle East Technical University, Engineering, Mechanical Engineering & Mechanics, 1981

Postgraduate, A Theoretical Investigation on the Simulation of the Sliding Vane Compressor Systems, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 1978

Research Areas

Fluid Mechanics, Pressure Vessels and Piping, Pipeline Engineering and Technology, Conventional Energy Systems and Their Technology, Fluid Machinery, Wind power, Fuels and Combustion, Heating, Refrigerating and Air Conditioning, Computational fluid dynamics

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1991 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1984 - 1991
Assistant Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1983 - 1984
Research Assistant, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1982 - 1983
Lecturer PhD, Lehigh University, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 1981 - 1982
Research Assistant, Lehigh University, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 1978 - 1981
Research Assistant, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1976 - 1978

Academic and Administrative Experience

Middle East Technical University, Faculty of Engineering, Department of Aerospace Engineering, 1985 - 1987

Advising Theses

AKSEL M. H., Design and performance analysis of a counter rotating propeller, Postgraduate, S.ÖZTÜRK(Student), 2022
AKSEL M. H., A subsonic (turboprop) engine inlet design and optimization, Postgraduate, S.ÖZER(Student), 2022
AKSEL M. H., Modelling of interaction of shock waves with analytical methods, Postgraduate, M.KOÇ(Student), 2022
AKSEL M. H., An automatic geometry and mesh generation tool for helicopter rotor aerodynamic design and analysis, Postgraduate, H.ELDEM(Student), 2021
AKSEL M. H., CFD simulation of the developing boundary layer in an atmospheric wind tunnel, Postgraduate, D.KIRAN(Student), 2018
AKSEL M. H., Cfd simulation of train fire in the İstanbul metro tunnel, Postgraduate, M.İLTER(Student), 2018
AKSEL M. H., BARAN Ö. U., On the applicability of progress variable approach for large eddy simulation of premixed flames, Postgraduate, B.TEKGÜL(Student), 2017
Aksel M. H., Baran Ö. U., Development of an automatic design and analysis tool for axial compressors, Postgraduate, N.ANIL(Student), 2017
AKSEL M. H., Evaluation of the efficiency increment potential for francis turbines using CFD analysis, Postgraduate, A.ÖMÜR(Student), 2016
AKSEL M. H., Numerical analysis of the effects of atmospheric parameters on space launch center safety, Postgraduate, İ.YAMAN(Student), 2016
AKSEL M. H., Meanline performance analysis of radial compressors, Postgraduate, E.GÜLLÜ(Student), 2015
AKSEL M. H., Development of a blade to blade solver for axial turbomachinery, Postgraduate, M.BİLGİÇ(Student), 2015
AKSEL M. H., Design and performance evaluations of the propeller of a UAV, Postgraduate, M.BAĞÇE(Student), 2015
SERT C., AKSEL M. H., GPU accelerated high-order discontinuous galerkin level set methods for incompressible multiphase flows, Doctorate, A.KARAKUŞ(Student), 2015
AKSEL M. H., Application of numerical shape optimization to the runner blades of a francis turbine, Postgraduate, M.YALILI(Student), 2015
AKSEL M. H., Development of a navier stokes solver for compressible flows on cartesian grids with aerodynamics applications, Doctorate, E.KARA(Student), 2015
AKSEL M. H., Development of a cycle design software for turboshaft engines, Postgraduate, M.ERK(Student), 2015
AKSEL M. H., Experimental and computational evaluation of transient behavior of a typical satellite monopropellant propulsion system, Postgraduate, A.TARÇIN(Student), 2014
AKSEL M. H., Development of interior ballistic simulation software, Postgraduate, F.DANIŞ(Student), 2014
YAVUZ M. M., AKSEL M. H., Design and analysis of a vertical axis water turbine for river applications using computational fluid dynamics, Postgraduate, E.DEMİRCAN(Student), 2014
AKSEL M. H., Computational modeling of fin-and-tube type vehicle radiators based on porous medium approach, Postgraduate, K.GÖKHAN(Student), 2014
AKSEL M. H., Numerical and experimental investigation of direct connected ramjet test facility, Postgraduate, B.ESİRGEN(Student), 2014
AKSEL M. H., Development of an external ballistics simulation software, Postgraduate, S.BERKAY(Student), 2013

AKSEL M. H., DESIGN AND CONSTRUCTION OF UNMANNED UNDERWATER VEHICLE, Postgraduate, F.ERCİS(Student), 2013

AKSEL M. H., Ballistic design optimization of three-dimensional grains using genetic algorithms, Postgraduate, O.YÜCEL(Student), 2012

AKSEL M. H., Multi-disciplinary design and optimization of air to surface missiles with respect to flight performance and radar cross section, Postgraduate, A.KARAKOÇ(Student), 2011

AKSEL M. H., SERT C., Experimental comparison of fluid and thermal characteristics of microchannel and metal foam heat sinks, Postgraduate, A.MUAZ(Student), 2011

AKSEL M. H., Development of a two-dimensional navier-stokes solver for laminar flows using cartesian grids, Postgraduate, M.SERKAN(Student), 2011

AKSEL M. H., Mechanical design of an underwater target emulator and jammer, Postgraduate, N.KARAİSMAİLOĞLU(Student), 2011

AKSEL M. H., Development of an octree based grid coarsening and multigrid flow solution, Doctorate, E.MAHMUTYAZICIOĞLU(Student), 2010

AKSEL M. H., Development of an axisymmetric, turbulent and unstructured navier-stokes solver, Postgraduate, M.AKDEMİR(Student), 2010

AKSEL M. H., Computer aided engineering of an unmanned underwater vehicle, Postgraduate, N.CEVHERİ(Student), 2009

AKSEL M. H., SERT C., Development of a multigrid accelerated Euler solver on adaptively refined two- and three-dimensional cartesian grids, Postgraduate, M.ÇAKMAK(Student), 2009

AKSEL M. H., SERT C., Experimental investigation and numerical analysis of microchannel heatsinks for phased array radar cooling applications, Postgraduate, E.ALPSAN(Student), 2008

AKSEL M. H., Analysis of grain burnback and international flow in solid propellant rocket motors in 3-dimensions, Doctorate, C.Yıldırım(Student), 2007

AKSEL M. H., Three dimensional laminar compressible navier stokes solver for internal rocket flow applications, Postgraduate, K.Coşkun(Student), 2007

AKSEL M. H., Development of a laminar Navier-Stokes solver for incompressible flows using structured grids, Postgraduate, A.Akın(Student), 2006

AKSEL M. H., Three dimensional hyperbolic grid generation, Postgraduate, U.CAN(Student), 2006

AKSEL M. H., Implementation of different flux evaluation schemes into a two-dimensional Euler solver, Postgraduate, E.Eraslan(Student), 2006

AKSEL M. H., Implementation of rotation into a 2-d euler solver, Postgraduate, E.Doruk(Student), 2005

AKSEL M. H., A quadtree-based adaptively-refined cartesian-grid algorithm for solution of the euler equations, Postgraduate, M.Bulkök(Student), 2005

AKSEL M. H., Adaptation of turbulence models to a navier-stokes solver, Postgraduate, E.GÜRDAMAR(Student), 2005

AKSEL M. H., Computation of external flow around rotating bodies, Doctorate, L.Oktay(Student), 2005

AKSEL M. H., Three-dimensional retarding walls and flow in their vicinity, Doctorate, K.Atılgan(Student), 2004

AKSEL M. H., Implementation of turbulence models into a Navier-Stokes solver, Postgraduate, M.Nail(Student), 2004

AKSEL M. H., Implementation of the Spalart-Allmaras turbulence model to a two-dimensional unstructured Navier-Stokes solver, Postgraduate, O.Aybay(Student), 2004

AKSEL M. H., Development of a Navier-Stokes solver for multi-block applications, Postgraduate, E.Erdoğan(Student), 2004

AKSEL M. H., Implementation and comparison of turbulence models on a flat plate problem using a Navier-Stokes solver, Postgraduate, B.Ziya(Student), 2003

AKSEL M. H., Development of a three-dimensional object-oriented Navier-Stokes solver by using total variation diminishing (TVD) method, Postgraduate, M.SARP(Student), 2002

AKSEL M. H., Development of an Euler solver for compressible fluids using adaptive grids., Postgraduate, Ö.EROL(Student), 2002

AKSEL M. H., Development of a three dimensional object-oriented Navier-Stokes solver using two-equation turbulence models, Postgraduate, M.EL(Student), 2001

AKSEL M. H., Development of a two-dimensional upwing euler solver using total variation diminishing (TVD) method,

Postgraduate, U.ÖZDEMİR(Student), 2001

AKSEL M. H., Development of a two-dimensional euler solver for unstructured grids, Postgraduate, İ.HAKKI(Student), 2001

AKSEL M. H., Simulation of three-dimensional inviscid flow inside rocket engine nozzles, Postgraduate, B.ALPHAN(Student), 2001

AKSEL M. H., Development of a three-dimensional Navier-Stokes solver for laminar and compressible flows by using finite volume method, Postgraduate, G.UÇAR(Student), 2001

AKSEL M. H., Parallel processing of two-dimensional euler equations for compressible flows, Postgraduate, K.DOĞRU(Student), 2000

AKSEL M. H., Development of a three dimensional object-oriented navier-stokes solver using C++ programming language, Postgraduate, M.UMUT(Student), 2000

AKSEL M. H., Development of an axisymmetric Euler solver using finite volume method for internal and external flows, Postgraduate, L.KANTAR(Student), 1999

AKSEL M. H., Development of a two-dimensional Navier-Stokes solver for laminer compressible flows by using the finite volume method, Postgraduate, H.IŞIK(Student), 1999

AKSEL M. H., Development of a three-dimensional object oriented euler solver using c++ programming language, Postgraduate, C.SERT(Student), 1998

AKSEL M. H., Development of a two dimensional euler solver by using finite difference method for internal flows, Postgraduate, A.EL(Student), 1996

AKSEL M. H., Development of a two dimensional evler solver using finite element method for internal flows, Postgraduate, H.LÜLE(Student), 1995

AKSEL M. H., A Numerical experimentation of the boundary conditions for a two-dimensional multigrid euler solver using finite volume method for internal flows, Postgraduate, E.ERTÜRK(Student), 1995

AKSEL M. H., Three dimensional esler saver with finite-volume method for internal flows, Postgraduate, F.ESEN(Student), 1995

AKSEL M. H., Gas-particle and gas-only flow in the nozzles of solid propellant rocket engines, Postgraduate, R.PANAHİ(Student), 1994

AKSEL M. H., Development of a two-dimensional euler solver using finite volume method for internal flows, Postgraduate, Ö.YARDIMCI(Student), 1994

AKSEL M. H., Computer- aided design and manufacturing of an axial fan, Postgraduate, Ö.ÇEÇEN(Student), 1993

AKSEL M. H., A Finite element solution of the navier-stokes equations for the incompressible flow through the bundles of cylinders, Postgraduate, A.ALTINIŞIK(Student), 1991

AKSEL M. H., Evaluation of duct design methods and computer aided 2-D air duct system design, Postgraduate, Ç.BAŞDOĞAN(Student), 1991

AKSEL M. H., Finite element simulation of viscous incompressible laminar flow over two-dimensional bodies, Postgraduate, M.ABDİRAHMAN(Student), 1991

AKSEL M. H., A Finite element solution of the navier-stokes equations for toe symmetric, viscous, incom pressible flow around a circular cylinder, Postgraduate, M.PAKSOY(Student), 1989

AKSEL M. H., A Finite element simulation of frontogenesis in the atmosphere with the primitive equations by using a horizontal deformation field model, Postgraduate, A.SONER(Student), 1989

AKSEL M. H., Development of a finite element computer code for the solution of some fluid mechanics and heat transfer problems., Postgraduate, M.MAHDİ(Student), 1988

AKSEL M. H., A Finite element simulation of frontogenesis by using the semi-implicit time integration scheme with a horizontal deformation field model, Postgraduate, H.TURHANGİL(Student), 1988

AKSEL M. H., A Finite element simulation of frontogenesis in the atmosphere with the vorticity-divergence formulation by using a horizontal deformation field model, Postgraduate, H.BİLGİÇ(Student), 1988

Jury Memberships

Appointment to Academic Staff-Professorship, Appointment Academic Staff, Orta Doğu Teknik Üniversitesi, June, 2018

Designed Lessons

Aksel M. H., Gas Dynamics, Undergraduate, 1991 - 1992

Published journal articles indexed by SCI, SSCI, and AHCI

I. **A Navier-Stokes Solver for Compressible Turbulent Flows on Quadtree and Octree Based Cartesian Grids**
Kara E., KUTLAR A. İ., AKSEL M. H.
JOURNAL OF APPLIED FLUID MECHANICS, vol.12, no.2, pp.539-549, 2019 (SCI-Expanded)

II. **DEVELOPMENT OF AN AUTOMATIC DESIGN AND ANALYSIS TOOL FOR AXIAL FLOW COMPRESSORS**
Kundes N. A., AKSEL M. H., BARAN Ö. U.
ISI BILIMI VE TEKNIGI DERGISI-JOURNAL OF THERMAL SCIENCE AND TECHNOLOGY, vol.39, no.2, pp.179-190, 2019 (SCI-Expanded)

III. **An adaptive fully discontinuous Galerkin level set method for incompressible multiphase flows**
KARAKUS A., WARBURTON T., AKSEL M. H., SERT C.
INTERNATIONAL JOURNAL OF NUMERICAL METHODS FOR HEAT & FLUID FLOW, vol.28, no.6, pp.1256-1278, 2018 (SCI-Expanded)

IV. **A GPU accelerated level set reinitialization for an adaptive discontinuous Galerkin method**
KARAKUS A., WARBURTON T., AKSEL M. H., SERT C.
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.72, no.3, pp.755-767, 2016 (SCI-Expanded)

V. **An octree-based solution-adaptive Cartesian grid generator and Euler solver for the simulation of three-dimensional inviscid compressible flows**
Kara E., KUTLAR A. İ., AKSEL M. H.
PROGRESS IN COMPUTATIONAL FLUID DYNAMICS, vol.16, no.3, pp.131-145, 2016 (SCI-Expanded)

VI. **A GPU-accelerated adaptive discontinuous Galerkin method for level set equation**
KARAKUS A., WARBURTON T., AKSEL M. H., SERT C.
INTERNATIONAL JOURNAL OF COMPUTATIONAL FLUID DYNAMICS, vol.30, no.1, pp.56-68, 2016 (SCI-Expanded)

VII. **A NUMERICAL-SIMULATION OF THE AXISYMMETRICAL VORTEX BREAKDOWN IN A TUBE**
AKSEL M., KAYA M.
APPLIED MATHEMATICAL MODELLING, vol.16, no.8, pp.414-422, 1992 (SCI-Expanded)

VIII. **A FINITE-ELEMENT STUDY OF FRONTOGENESIS**
AKSEL M. H., MACPHERSON A., HILTON P.
MONTHLY WEATHER REVIEW, vol.112, no.5, pp.1053-1066, 1984 (SCI-Expanded)

IX. **A STUDY OF FRONTOGENESIS USING FINITE-ELEMENT AND FINITE-DIFFERENCE METHODS**
MACPHERSON A., AKSEL M. H., HILTON P.
MONTHLY WEATHER REVIEW, vol.108, no.8, pp.1183-1196, 1980 (SCI-Expanded)

Refereed Congress / Symposium Publications in Proceedings

I. **EXTENSION OF THE MULTALL OPEN SOURCE THROUGHFLOW CODE FOR THE IMPROVED ENDWALL LOSS SIMULATION**
Bilgiç M., BARAN Ö. U., AKSEL M. H.
ASME Turbo Expo 2023: Turbomachinery Technical Conference and Exposition, GT 2023, Massachusetts, United States Of America, 26 - 30 June 2023, vol.13A

II. **Numerical Simulation of Lateral Jet in a Supersonic Missile Using Computational Fluid Dynamics**
Dağlı E. C., Aksel M. H.
18th International Conference on Machine Design and Production (UMTIK 2018), Eskişehir, Turkey, 3 - 06 July 2018, pp.68

III. **CFD Simulation of Train Fire in the İstanbul Metro Tunnel**
Bilge M. İ., Aksel M. H.
18th International Conference on Machine Design and Production (UMTIK 2018), Eskişehir, Turkey, 3 - 06 July 2018, pp.71

IV. **A Cartesian Based Mesh Generator with Body Fitted Boundary Layers**
Özkan M., Baran Ö. U., Aksel M. H.
18th International Conference on Machine Design and Production (UMTIK 2018), Eskişehir, Turkey, 3 - 06 July 2018, pp.72

V. **Design and Cold Flow Experimental Procedure of a Pintle Injector**
Erkal B., Aksel M. H.
18th International Conference on Machine Design and Production (UMTIK 2018), Eskişehir, Turkey, 03 July 2018 - 06 July 2019, pp.70

VI. **Implementation of SU2 Solver with Cell-Based Data Structure for 3D RANS Equations**
Saatloo M. M., Baran Ö. U., Aksel M. H.
American Institute of Aeronautics and Astronautics 2018 Fluid Dynamics Conference, Georgia, United States Of America, 25 June - 29 November 2018, pp.1-15

VII. **Lift Coefficient Calculation Using a Geometric/Solution Adaptive Navier Stokes Solver on Two-Dimensional Cartesian Grids for Compressible and Turbulent Flows**
Kara E., KUTLAR A. İ., AKSEL M. H.
36th Meeting of Departments of Fluid Mechanics and Thermodynamics, Pilsen, Czech Republic, 13 - 15 June 2017, vol.1889

VIII. **Three-Dimensional Grain Design Optimization of Solid Rocket Motors**
Yucel O., Acik S., Toker K. A., DURSUNKAYA Z., AKSEL M. H.
7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.471-476

IX. **Ground Tests of a Simplified Satellite Monopropellant Propulsion System**
Tarcin A. C., Bayramoglu M., Esirgen B., Poyraz U., Olgun U., Toker A., Ak M. A., AKSEL M. H.
7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.411-415

X. **Three Dimensional Grain Design Optimizationof Solid Rocket Motors**
YÜCEL O., SEVDA A., ATILGAN T., DURSUNKAYA Z., AKSEL M. H.
RAST 2015, 16 - 19 June 2015

XI. **Dikey Eksenli Darrieus Tip Su Turbinlerinin Hesaplamali Akiskanlar Dinamgi ile Analizi**
DEMİRCAN E., AKSEL M. H., YAVUZ M. M.
8. Pompa Vana Konferansi, İstanbul, Turkey, 2 - 04 May 2013, vol.1

Supported Projects

Konukseven E. I., Kündeş N. A., Atar M. B., Aksel M. H., Project Supported by Other Private Institutions, Aktif Yıkama Alanının Arttırıldığı Yeni Nesil Bulaşık Makinası Alt Pervanesi Tasarımı, 2017 - 2018

AKSEL M. H., MANSOOR SAATLOO M., AZARIFAR M., KARSHENASS A., Project Supported by Higher Education Institutions, Kartezyen Hesaplama Ağları Kullanılarak Üç Boyutlu Sıkıştırılabilir Akışlar için Navier-Stokes Çözücüsü Geliştirilmesi, 2015 - 2018

AKSEL M. H., YAVUZ M. M., DEMİRCAN E., Project Supported by Higher Education Institutions, Değişik Kanat Profillerinin Darrieus tipi Su Türbinlerinin Performansına Etkisinin Deneysel Olarak İncelenmesi, 2013 - 2015

AKSEL M. H., Project Supported by Higher Education Institutions, Kartezyen Hesaplama Ağları İçin İki Boyutlu Navier - Stokes Çözücüsü Geliştirilmesi, 2010 - 2012

Scientific Refereeing

JOURNAL OF APPLIED FLUID MECHANICS, SCI Journal, March 2019
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Karadeniz Technical University, Turkey, December 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Istanbul Technical University, Turkey, December 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Marmara University, Turkey, December 2018
Technopark, EnginSoft Turkey Mühendislik Yazılım Ticaret Limited Şirketi, Turkey, November 2018
JOURNAL OF APPLIED FLUID MECHANICS, SCI Journal, March 2018

Metrics

Publication: 21
Citation (WoS): 50
Citation (Scopus): 57
H-Index (WoS): 4
H-Index (Scopus): 4

Non Academic Experience

TÜRKİYE ATOM ENERJİSİ KURUMU
ODTÜ, Uygulamalı Matematik Enstitüsü
ODTÜ, Fen Bilimleri Enstitüsü
ODTÜ, Makina Mühendisliği Bölümü
TÜBİTAK
ODTÜ, Makina Mühendisliği Bölümü
ODTÜ, Mühendislik Fakültesi
ODTÜ, BİLTİR Merkezi
ODTÜ, Makina Mühendisliği Bölümü
ODTÜ, Makina Mühendisliği Bölümü
Von Karman Enstitüsü, Belçika
Türk Havacılık ve Uzay Sanayi (TAI)
ODTÜ, Makina Mühendisliği Bölümü
SAGE, TÜBİTAK
ODTÜ, Makina Mühendisliği Bölümü
ODTÜ, Havacılık Mühendisliği Bölümü
ODTÜ, Makina Mühendisliği Bölümü
ODTÜ, Makina Mühendisliği Bölümü
Gazi Üniversitesi, Makina Mühendisliği Bölümü
ODTÜ, Makina Mühendisliği Bölümü
Lehigh Üniversitesi, Makina Mühendisliği Bölümü
Lehigh Üniversitesi, Makina Mühendisliği Bölümü
Lehigh Üniversitesi, Makina Mühendisliği Bölümü
ODTÜ, Makina Mühendisliği Bölümü
Ankara Erkek Teknik Yüksek Öğretmen Okulu
ODTÜ, Makina Mühendisliği Bölümü
Petrol Ofisi Genel Müdürlüğü

ODTÜ, Makina Mühendisliği Bölümü