

Ahmet Şevket Üçer

Education

- 1960 : High School, T.E.D. Ankara College.
- 1964 : B.Sc. Middle East Technical University (METU), Mechanical Engineering Department
- 1965 : M.Sc. Middle East Technical University (METU), Mechanical Engineering Department
- April 1970 : Ph.D. University of Manchester Institute of Science and Technology (UMIST), England.

Academic Activities

- 1965-1967 : Teaching Assistant, METU, Mechanical Engineering Department
- 1967-1970 : UNESCO Scholar for Ph.D. studies. Research on "Unsteady Flow in Compressor Systems".
- July 1970 : Instructor in the Mechanical Engineering Department METU.
- June 1971-May 1975 : Assistant Professor in the Mech. Eng. Dept. of METU.
- 1971-1973 : Project Director "Unsteady Flow in Two Stage Reciprocating Compressors", supported by the Scientific and Technical Research Council of Turkey (TÜBİTAK)
- 1972-1974 : Post doctorate researcher, Collaborative research on compressor Simulation with the University of Manchester Institute of Science and Technology, Thermo- Fluids Division Supported by British Council
- May 1975 : Associate Professor in the Field of Gas Dynamics, Mechanical Engineering Department, METU
- June 1978-January 1979 : Visiting Professor in Denmark Technical University Energiteknik Laboratory, Denmark
- 1978-1995 : Member and National Coordinator NATO-AGARD 'Propulsion and Energetics Panel' (PEP)
- 1978-1980 : Working group member, AGARD-PEP, WG 12 "Through Flow Calculations in Turbomachines".
- 1979-1987 : Working group member, AGARD-PEP, WG 15 "Uniform Engine Testing".
- 1979-1985 : Project coordinator, "Uniform Engine Testing Program" of AGARD-PEP, and Turkish Air Force.
- 1979-1995 : Standing committee member, AGARD-PEP SC 02 "Rocket and Ramjet Technology".

- 1979-1980 : Consultant to Scientific and Technical Research Council of Turkey (TÜBİTAK).
Defense Research and Development Institute
- 1979-1980 : Project Director, "Three Dimensional Flow in Turbomachines" supported by TÜBİTAK.
- May 1981 : Professor of Mechanical Engineering, METU.
- 1982-1987 : Project Manager, NATO-AGARD PEP T18 "Losses and Deviations in Axial Flow Compressors" with Iowa State University, USA and Vrije University Brussels Belgium.
- 1983 : Host Nation Coordinator of AGARD-PEP 62nd Meeting.
- 1983-1984 : Director of the NATO-ASI on Thermodynamics and Fluid Mechanics of Turbomachinery.
- 1984-1985 : Program Committee Chairman of AGARD Conference on "Smokeless Propellants", 12-13 September 1985, Florence, Italy.
- 1985-1986 : Program Committee Member of AGARD Conference on "Transonic and Supersonic Phenomena in Tubomachines", 10-12 September 1986, Munich, Germany
- 1987 : Founder of Aerospace Design Technology Group (ADTG) of METU.
- 1986-1987 : Program Committee Member of AGARD Conference on "Advanced Technology for Aero Gas Turbine Components", 4-8 May 1987, Paris, France.
- 1988-1989 : Program Committee Member of the AGARD Symposium on "Unsteady Aerodynamic Phenomena in Turbomachines", 4-8 September 1989, Luxembourg.
- 1990-1992 : Chairman of AGARD AHC 73-1 on "Combat Aircraft Noise"
- Aug. 1990-Aug. 1991 : Senior Resident Research Fellow, Naval Postgraduate School, Aeronautics and Astronautics Dept., Turbo propulsion Laboratory, Monterey, CA, USA
- 1990-1991 : Program Committee Member of the AGARD Symposium on "CFD Techniques in Propulsion Applications", 27-31 May 1991, San Antonio, USA.
- 1991-1993 : Consultant to the ROKETSAN Company
- 1992 Oct. : Host National Coordinator of AGARD-PEP 80th meeting in Turkey
- 1993-1994 : Program Committee Member of the AGARD Symposium on "Environmental Aspects of Rocket and Gun Propulsion", 29 Aug.-2 Sep. 1994. Aalesund, Norway.
- 1993-1994 : Lecture Series Director of AGARD LS 195 on "Turbomachinery Design Using CFD"
- 2006 - :

Lectures on Globalization and Technology management in Turkish Military Academy and Middle East Technical University, and Science, Technology and Society in Bilkent University

Teaching

- Thermodynamics I
- Fluid Mechanics I and II, Advanced Fluid Mechanics
- Gas Dynamics and Advanced Gas Dynamics
- Fluid Machinery and Turbomachinery
- Mechanical Engineering Laboratory
- Science, Technology and Society
- Globalization and Technology Management

Scholarships & Awards

- 1966 : UNESCO Fellowship for research leading to Ph.D. degree
- 1990 : U.S. Academy of Sciences National Research Council, Senior Resident Research Associate Award
- 1992 : Research Promotion Award of PARLAR Foundation to Aerospace Design technology Group (ADTG)
- 1995 : "Scientific Achievement Award" of NATO Advisory Group of Aerospace Research and Development (AGARD)
- 1999 : Thesis Supervisor, Thesis of the Year Award, Oktay Gönç, ODTÜ-PARLAR Foundation

Publications

An Approximate Solution for Non-Steady Flows in Ducts with Friction, International Journal of Mechanical Science, with R.S. Benson, Vol. 13, p.816, 1971.

A Theoretical and Experimental Investigation of Gas Dynamics Model for a Single Stage Reciprocating Compressor with Intake and Delivery Pipe Systems, Journal of Mechanical Engineering Science, with R.S. Benson, Vol. 14, No. 4, 1972.

Some Recent Research on Gas Dynamic Modeling of Multiple Single Stage Reciprocating Compressors Systems, Purdue Compressor Technology Conference Proceedings, pp.491-499, Lafayette, Indiana, 1972.

Pressure Pulsations in Pipe Systems with Multiple Reciprocating Air Compressors and Receivers, Journal of Mechanical Engineering Science, with R.S. Benson, Vol. 15, No.1, p.33, 1973.

An experimental study on the compressor non-return valves (in Turkish) IV. TÜBİTAK Science Congress, with Kemal Büyükmihci, Mk 1, No. 3, Ankara 1973.

New Advances in the simulation of Reciprocating Compressors (in Turkish) IV. TÜBİTAK Science Congress, with Kemal Büyükmihci, Mk 1, No. 4 1973.

Some Further Analysis of Reciprocating Compressor Systems, Purdue Compressor Technology Conference proceeding with R. S. Benson and A. Azim, pp. 124-131, Lafayette, Indiana, 1974.

A Comparison of Computer Simulation Techniques of Gas Flow in Multiple Single-Stage and Two Stage Reciprocating Compressor Systems, Purdue Compressor Technology Conference, Proceedings, pp. 26-32, Lafayette, Indiana, 1976.

An Experimental and Theoretical Study on the Effect of Heat Transfer to Unsteady compressible Flows (in Turkish) VI. TÜBİTAK Science Congress with Cahit Eralp, p.229, İzmir, 1977.

An Experimental and Theoretical Study on supercharging of Piston Compressors (in Turkish) VI. TÜBİTAK Science Congress with Nusret Veryeri, p.501, İzmir, 1977.

Simulation of Single and Double - Stage Reciprocating Compressor Systems with Allowance for Frictional Effects and Heat Transfer, Israel Journal of Technology, with R.S. Benson, Vol. 15, pp.196-208, 1977.

Simulation of Compressor Systems (in Turkish), First National Congress on Heat Power, T.N.II C3, Ankara 1977.

Modern Techniques for the Design and Performance Prediction of Turbomachinery (in Turkish), First National Pump Congress, BN.14, Istanbul, 1979.

Simulation Studies on Rotary Type Compressor Systems, Purdue Compressor Technology Conference, with H.M.Aksel, THM 4, Lafayette, Indiana, 1980.

Analysis of Flow Through Roots Blower Systems, Purdue Compressor Technology Conference, with I. Çelik, THM 6, Lafayette, Indiana, 1980.

Finite Element Solution of Compressible Flow Through Turbomachines (in Turkish) VII. TÜBİTAK Science Congress, with I. Yeğen, T Durmaz, C. Nalbantoğlu, 1980.

Solution of Flow Through Turbomachine Cascades (in Turkish) VII. TÜBİTAK Science Congress, with H.U. Akay, T.A. Çetinkaya, I. Yeğen, 1980.

Design and construction of a small supersonic wind Tunnel (in Turkish) VII. TÜBİTAK Science Congress, with A. Çitçi, 1980.

Thermo-Fluid Analysis of Thermal Energy in Large Reservoirs, METU Journal of Pure and Applied Sciences, Vol. 13 No. 1, 1980.

Finite Element Solution of Compressible Flow Through Cascades of Turbomachines, Proceedings of the Second International Conference on Numerical Methods in Laminar and Tub. Lent Flows, with T.A. Çetinkaya, I. Yeğen, Italy, pp.789-800, 1981

A Three-Dimensional Finite Element Solution for Steady Compressible Flow Through Turbomachines, with I. Yeğen and T. Durmaz, ASME Journal of Eng. For Power, pp.538-542, Vol. 105, 1983.

Large Scale Energy Storage, with R. Oskay, F. Çömez, International Conference on Subsurface Heat Storage, Stockholm, 1983.

A Pseudo-Time Dependent Potential Flow Solution Through Turbomachine Cascades Using Finite Element Method, with H. Erođlu, I. Yeđen, I Mech. Eng. Proceedings C59/89, pp.125-132, 1984.

Finite Element Technique for the solution of Flow Through Arbitrary Turbomachines (in Turkish), with I. Yeđen, Dođa, TÜBİTAK, pp.180-199, 1983.

Subsonic and Transonic Flow Solutions Using Time Dependent Full Potential Equation, NATO-ASI on Thermo and Fluid Mech. of Turbo. İzmir, Sept. 1984. Also published in the Proceedings, pp. 199-230, 1985.

Large Scale Energy Storage "Solar Energy Utilization", Ed. Yüncü, Paykoc, Yener NATO ASI Series, Martinus Nijhoff Pub. Dordrecht., pp.500-501, 1987.

Application of Modified Loss and Deviation Correlation's to Transonic Axial Compressors, with M. Çetin, Ch. Hirsch, G. Serovy, AGARD Report No. 745, 1987.

An Off Design Loss and Deviation Prediction Study for Transonic Axial Compressors, with M.Çetin, Ch. Hirsch, and G. Serovy, ASME-IGTI conference Toronto, 1989.

A Study on Secondary Flow and Spanwise Mixing, with M. Erkilet, AGARD PEP Specialist Meeting Proceedings on Secondary Flows in Turbomachines. CP460 1990.

A Computational Design Method for Shock Free Transonic Cascades and Airfoils, with T. Çetinkaya, S. Akmandor, AGARD FDP meeting proceedings on Computational Methods for Aerodynamic Design (inverse) and Optimization, CP463 1992.

Computer Simulation of Solid Rocket Motors (in Turkish), with T. Tınaztepe, S. Akmandor, Combustion Symposium, Istanbul, Turkey, 1990.

Performance Analysis of Rocket Motors (in Turkish), with Z. Dülger, Combustion Symposium, Istanbul, Turkey, 1990.

Internal Ballistic Computations o Solid Rocket Motors, T. Tınaztepe, S. Akmandor, Joint Propulsion Conference AIAA-ASME, Sacramento, CA, 1991.

Three Dimensional Solution of Internal Flows Using A Cell Vertex Finite Volume Method, with E. Oktay and S. Akmandor, AGARD CP 510, 1992.

A Viscous Axisymmetric Throughflow Prediction Method for Multistage Compressors, with R.P. Shreeve, ASME Paper No 92-GT-293, 1992.

Aerodynamic Design and Analysis of Axial Flow Compressors, with Mahir Çakırođlu, METU Aeronautics Department Symposium Ankara, 1992.

Unsteady Internal Ballistic Calculations of Solid Rocket Motors, with T.Tınaztepe and S. Akmandor, Technical Note, AIAA Journal of Propulsion and Power, Vol. 8 No. 5, PP 1123-1125, 1992.

Working Group Activities of AGARD Propulsion and Energetic Panel, presented to the ASME-IGTI Conference, Cincinnati, USA, 1993. Also published in the ASME Journal of Gas Turbines and Power Vol. 116, PP, 307-314. 1994.

Loss Prediction in Axial Flow Cascades Using an N-S Solver, with T. Tinaztepe, S. Akmandor, AGARD PEP Conference on "Loss Mechanisms and Unsteady Flows in Turbomachines, AGARD-CP-571, 1996.

A Preliminary Design System for Axial Flow Spools using numerical optimization Önder Oktay, Çağlar Kırıl, Cem Dener, I SABE 97-7038 page 233-242 1997.

A Numerical Solution of Three Dimensional Inviscid Rotational Flow in Turbomachinery and Ducts, with E Oktay and S. Akmandor., International Journal for Numerical Methods in Fluids., 26: 907-926 (1998).

Axial Compressor and Turbine Stage Design Using Through-Flow and Blade-to-Blade Codes, with Oktay Gönç, accepted for publication in the proceedings of XIV ISABE, Florence 1999.

Performance Evaluation of an Internal Flow Navier-Stokes Solver for Compressible Viscous Flow solutions, with T. Tinaztepe and S. Akmandor, Proceedings of ASME'2002 47th ASME Gas Turbine and Aeroengine Congress. 2002

One-Dimensional Combustion Instability Studies with Moving Boundaries in an End-Burning Test Motor, with Kerem Pekkan, AIAA Paper 02-3608, AIAA Joint Propulsion Conference, Indianapolis, July 2002.

A 2D Moving Boundary Cartesian Grid Solver for Internal Flow Fields of SRM's, with Kerem Pekkan, NATO-RTO AVT Specialists' Meeting on Advances in Rocket Performance Life and Disposal, Denmark, 2002

Characteristic Euler shock-fitting formulation for multi-dimensional flows, with E A Basesme and I S Akmandor, International Journal for Numerical Methods in Fluids, Int. J. Numer. Meth. Fluids 2003; 43:319-343

Technological Competency in Defence Industry, with O Ertem, U Cezayirlioglu, A Temiz, 5. Ankara International Aerospace Conference AIAC-2009-122 17-19 August 2009 - METU, Ankara TURKEY

Books and Reports

Analysis of Waves in a Simple Shock Tube, M.Sc. Thesis, METU, 1965.

Unsteady Flow in Compressor Systems, Ph.D. Thesis University of Manchester, 1970.

Unsteady Flow in Two Stage Compressors (in Turkish), TÜBİTAK MAG 256/A Final Report, 1974.

Numerical simulation of One and 2 Stage Compressors Systems Using Nonhomentropic Flow Theories (in Turkish), Associate Professorship dissertation, 1975.

Fluid Mechanics of Turbomachinery, ME 402 Fluid Machinery course notes, 1980.

Solution of 3-D Flow through Tubromachinery (in Turkish), TÜBİTAK MAG 519 Final Report, 1980.

Analysis of Results of a Gas Turbine Performance Test, AGARD, WG-15 Test Results Report, 1985.

Contributions to the Advisory Report of WG.12 "Through Flow Calculations in Turbomachines, AGARD Report (AR 175), 1981.

Thermodynamics and Fluid Mechanics of Turbomachinery (2 volumes) edited with P. Stow and Ch. Hirsch, Martinus Nijhoff Publishers of the Netherlands, NATO-ASI Series, 1985.

Throughflow Model with Three Dimensional Effects for Axial Flow Compressors, Naval Postgraduate School Contractors Report NPS-AA-CR002, 1991.

MSCQ3D Users Manual, Naval postgraduate School Contractors Report, NPS-AA-CR003, 1991.

Turbomachinery Design Using CFD, AGARD LS 195 Introduction and overview, 1994.

Management Related Activities

Middle East Technical University

November 1977-March 1978 : Assistant Chairman, Mech. Eng. Dept., METU.

March 1978-June 1978 : Acting Chairman, Mech. Eng. Dept., METU.

1979-1980 : METU Library committee member.

1979-1980 : Member of the University Council, METU.

1979-1980 : Member of University Planning Committee, METU.

1980-1982 : Chairman, Mechanical Engineering Department, METU.

1982-1983 : Vice President for Research Middle East Technical University.

1987-1990 : Chairman, Mechanical Engineering Department, METU.

In Turkey, Outside Middle East Technical University

1981-1987 : Member of Engineering Research Group Scientific and Technical Research Council of Turkey (TÜBİTAK).

1985-1987 : Director of TÜBİTAK Ballistic Research Institute.

1989-1990 : Consultant to ROKETSAN Co., Founder of Engineering and Development Department

Dec. 1992 - Feb. 1998 : Vice President, Scientific and Technical Research Council of Turkey (TÜBİTAK)

- 1994 - 1998 : Member of the Board of Directors of TÜBİTAK Marmara Research Center (MRC)
- 1994 - 1998 : Member of the Board of Directors of TÜBİTAK BİLTEN
- 1994 - 1998 : Member of the Board of Directors of TÜBİTAK SAGE
- 1999 - 2003 : Member of the Board of Directors of TÜBİTAK Science and Technology Foundation
- 2000 - 2003: Member of Technology Advisory Committee of General Electric Marmara Technology Center and TÜBİTAK Marmara Research Center
- 2007 - : Consultant to TUSAS/TAI (Turkish Aerospace Industry) on Technology and Knowledge management

International

- 1989-1991 : Deputy Chairman of NATO AGARD Propulsion and Energetic Panel
- 1991-1993 : Chairman of NATO AGARD Propulsion and Energetic Panel
- 1991-1992 : Chairman of the AGARD Panel Chairmen Meetings.
- 1995-1997 : Turkish National Delegate to AGARD
- 1995-1997 : Member of NATO-AGARD Chairman's Advisory Committee for restructuring AGARD and DRG into Research and Technology organization (RTO)
- 1997 - 2003 : Turkish National Delegate to NATO Research and Technology Board
- 1998 - 2000 : Member of NATO wide Research and Technology Strategy Team.
- 2003 - 2006 : Director of NATO Research and Technology Agency (RTA)
- 2009 - : Consultant to Assistant Secretary General of NATO PDD on STANDEX project

Supervised Research

Simulation of Single Stage Reciprocating Compressor Systems on a Digital Computer, Kemal Büyükmihci, 1973.

An Experimental and Theoretical Study on Reciprocating Compressor Valves, Ersan Bora, 1973.

A Theoretical and Experimental Investigation on the Unsteady Compressible Flow in a Pipe with Heat Transfer, Friction and Entropy Charge, Cahit Eralp, 1974.

A Theoretical and Experimental Study on Induction Ramming of a Single Stage High Speed Reciprocating Compressor, Nusret Veryeri, 1974.

A Theoretical Study on the Design of Two Dimensional Supersonic Wind Tunnel Nozzles, Hüseyin Güneş, 1975.

A Theoretical Study and Numerical Experiment Concerning Aerodynamic Characteristics of Wings and Wing Sections in Potential Incompressible Flow Erdem Tackı, 1975.

A Theoretical and Experimental Study on Pulsation Damping Systems of Reciprocating Compressors, Yılmaz Kuşkay, 1975.

An Experimental Investigation on the Operational Problems of a Small Gas Turbine Engine, Fehmi Algün, 1977.

A Theoretical Investigation on the Simulation of Sliding Vane Compressor Systems, Haluk Aksel, 1978.

A Theoretical Investigation on the Simulation of Roots Blower Systems on a Digital Computer, İbrahim Çelik, 1978.

Further Work on the Compressor System Simulation and on Compressor Values, Nusret Çubuk, 1978.

Calculation of Flow Pattern on the Blade to Blade Surface of on Arbitrary Turbomachines, Hilmi Kaplan, 1978.

Calculation of Subsonic Compressible Flow Through Turbomachine Cascades Using Finite Element Method, Tahsin Çetinkaya, 1980.

Design and Construction of a Supersonic Wind Tunnel, Ali Çitçi, 1980.

Through Flow Calculations in Turbomachinery, Coşkun Nalbantoğlu, 1981.

Quasi-Three Dimensional Solution of Compressible Subsonic Flow Through turbomachines, Timur Durmaz, 1981.

An Experimental Investigation on a Small Supersonic Wind Tunnel, Zekeriya Çelik, 1982.

Computation of Two-Dimensional Inviscid, Transonic Flows using Finite Element Method, Ufuk Kıvrak, 1983.

Potential Flow Solution Through Cascades, Hasan Eroğlu, 1983.

An Investigation on Losses and Deviations in Axial Flow Compressors, Mete Çetin, 1985.

Investigation on Axial Compressor Loss and Deviation Correlation's Applied to a Through Flow Computer Code, Hakan Arıtürk, 1986.

Computer Simulation of Radial Flow Pumps, Yücel Özdemir, 1986.

Secondary Flow and Spanwise Mixing in Axial Flow Compressors, Oktay Oguz, 1986.

An Investigation on the Solution of Euler Equations for Compressible Flows, Erdal Oktay, 1986.

Through Flow Calculations in a Francis Turbine Using Finite Element Method, Sıtkı Uslu, 1986.

Time Depended Finite Volume Solution of Euler Equations in External and Internal Flows, Erdal Oktay, Ph.D. 1991.

Solution of Euler Equations using Finite Volume Newton Method through Turbomachine Cascades, Tahsin Çetinkaya, Ph.D. 1990.

Further Work on Spanwise Mixing in Axial Flow Compressors, Murat Erkilet, 1989.

Thermo-Chemical Calculations of Solid Propellants, Zafer Dülger, 1989.

A Theoretical Investigation on Internal Ballistic Prediction of Solid Rocket Motors, Tuğrul Tinaztepe, 1990.

Axial Flow Compressor Design using Blade to Blade and Throughflow Computer Codes, Mahir Çakıroğlu, 1990.

Secondary Flows in Compressors, Merve Erdal, 1992.

Structural mesh generation for Three Dimensional Flows, Mahir Çakıroğlu, Ph.D, 1997.

On the Cell vertex Navies - Stokes Internal Flow Solver, Tuğrul Tinaztepe, Ph.D. 1997.

On the Turbulence Models for Incompressible N-S solvers, Atif Yardımcı. 1994.

Code Development for Unstructured Mesh Generation, Mehmet Coşkun, 1994.

A Preliminary Design System for Axial Flow Turbines, Çağlar Kırıl, 1996.

A preliminary Design System for Axial Flow Compressors, Önder Okyay, 1996.

Performance Prediction and Cycle Selection of Gas Turbine Engines, Emre Öztürk, 1996.

Solution of Euler Equations Using Method of Characteristics, Ph.D., Ertuğrul Başeşme, 1998.

Axial Compressor and Turbine Stage Design Using Through-Flow and Blade-to-Blade Codes, Oktay Gönç. 1998.

A Two-Dimensional Time-Dependent Euler Solver for Moving Boundaries in Cartesian Grids Applied to Injection Driven Internal Flows, Kerem Pekkan, Ph D, 2000

Modelling and Simulation of Chemical Agent Dispersion, Hüdai Hakkı Özdamar, Ph D, 2003.

Membership

Member of American Institute Aeronautics and Astronautics (AIAA) , (1988 - 1994)

Member of American Society of Mechanical Engineers (ASME), (1988- 2003)

Member of ASME International Gas Turbine Institute (IGTI) and Turbomachinery Committee (1988-)

Member of AGARD Propulsion and Energetics Panel (1978 -1995)

Member of the Turkish Chamber of Mechanical Engineers (1965 -)

Executive Committee Member of ISOABE (1996 - 2003)

Member of the TED Alumni society

Member of ODTÜ Alumni society

Paper Review

AIAA Journal

ASME-IGTI Conferences

ISOABE Conferences

Turkish Journal of Engineering and Environmental Sciences, TÜBİTAK

Personal

Name : Ahmet Şevket Üçer

Birth Date : May 16, 1943

Birth Place : Istanbul

Married and has two daughters

Plays classical guitar