

Resume

Personal Information:

Name : Amro M. Al-Qutub

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Education:

1996 - PhD. in Mechanical and Aerospace Engineering
University of Alabama in Huntsville, UAS.

1992 - Master of Science in Mechanical Engineering, KFUPM
Dhahran, Saudi Arabia.

1987- B.Sc. in Mechanical Engineering /Aeronautical option KFUPM
Dhahran Saudi Arabia.

Employment History:

1996-Present: Associate professor, Mechanical engineering Department , KFUPM

1987-1992: Graduate Assistance, Mechanical engineering Department, KFUPM.

Achievement:

Received the highest award in the Kingdom of Saudi Arabia " The Honorable King Abdul-Aziz Medal of the first Degree for Scientific achievement and innovative research" Handed From His Royal Hines the Crown Prince Abdullah Bin Abdul-Aziz, on 2004.

Other Professional Experience:

2000: Research Scientist in the Space Research Center at King Abdulaziz City for Science and Technology, Reyadh, Saudi Arabia. Was appointed as a project Manager.

1995: Worked on cold flow simulation of solid rocket motors in conjunction with NAA fluid lab facility at NASA Space center, Huntsville Alabama, USA.

1994: Worked with Nd-Yag and Die-Lasers including operation, maintenance and Calibration of phase-conjugate mirror, Propulsion research center UAH, Huntsville, Alabama, USA.

1993-1996: Research Assistance, Propulsion Research Center, UAH,
Huntsville, Alabama, USA.

Summer 1986: Worked at ARAMCO aviation Department, Maintenance Section,
Dhahran, Saudi Arabia.

Design and Development Experiences:

- Developed a new heat engine technology. Supervising the development of the prototype that is under construction in collaboration with Fraunhofer Institute Germany and FEV- Aachen Germany.
- Developed a full plan for the establishment of a turbomachinery center at King Fahd University of Petroleum and Minerals including floor plan, technical requirements, instrumentation, and equipments specifications as well as financial Planning
- Participated as the chairman of the committee in the development of the innovation center at DTV, KFUPM.
- Designed a Test rig including instrumentation and uncertainty analysis for air and gas compressors (500 kW)
- Designed a test rig for small gas turbine including instrumentation for analyzing gas turbines performance.(2004-2005)
- Designed and assembled a high temperature Tribometer complying with ASTM for tribometers at KFUPM, (2001). The cost of such machine is over 120,000 \$ in the USA. It was built at KFUPM at less than 15,000 \$, with equivalent specifications.
- Designed and built a blow-down facility and test section including the setup for the data acquisition system and instrumentations for conducting experiments on gas seals used in the Space Shuttle Main Engine Turbo-Pumps, (1995).
- Designed a moving surface wing that is manufactured at KFUPM for testing the aerodynamic performance and the development of the technology (2002).
- Modified the design of the Ludwig Tube Tunnel (a supersonic wind tunnel) at KFUPM 1990.
- Design and manufactured several go-carts (3.5 hp to 11 hp) single and double seats successfully.(1988-2002)
- Supervised the design of the multi-stage water rocket to be used for research in the field of high speed aerodynamics (1999).

- Supervised the design of a RPV (Remotely Piloted), (2000), the first one to be launched from a catapult. I was responsible for the design of the catapult.
- Designed and supervised manufacturing of Four special swimming training benches at Al-Qadessiah Culb in Al-Khobar 1988, and still working up to date.

Contract Projects:

- Saudi Electric Company, on High vane passing frequency of Boiler Feed Pump, Contract CER 8829-2004.
- Al-Zamil AC Factory, on Investigation of Propeller Fan Failure, 2000, PN ME 4916.
- Wear Properties of Al₂O₃ composites at various sliding SABIC 2003-07.
- The use of Al₂O₃ composites in Brake systems.
- Enhancement of the High temperature Tribometer capabilities.
- Boiler swing rate. ARAMCO project

Teaching Experience:

Taught the following courses at KFUPM:

- Propulsion Systems (ME 422 / AE 422)
- Turbomachinery (ME 427)
- Fundamentals of Aerodynamics (ME 433 / AE 333)
- Fluid Mechanics (ME311)
- Thermodynamics I (ME203)
- Senior Design Project (ME411)
- Mechanics of Machines (ME309)
- Uncertainty analysis and experimentation ME (590)
- Advanced Fluid Mechanics(ME 532)
- Fluid Mechanics Lab.
- Aerodynamic Lab.

I have also worked as the coordinator of the senior-project course in ME department (during the semesters: 981, 982, 991, and 992), and supervised many senior projects and Co-op students.

Participation in Short Courses:

Lectured in the following courses:

- Propulsion systems and its applications KFUPM (as a coordinator also)
- Turbine and compressor Maintenance and operation, KFUPM
- Vibration in Rotating Machinery, KFUPM
- Stress Analysis – Basics and Applications (design course)
- Project management, KFUPM and KACST

- Uncertainty analysis in experiments.

Thesis Supervision:

- Principal Supervisor of five M.Sc. graduated in 2001 (ME).
- Co-supervisor of two M.Sc. graduate students
- Currently the co-Supervisor of a M.Sc. Student (ME).

Patents

- 1- "**Heat Engine**" , US Patent 5,709,188, Jan 1998.
- 2- "Movable Surface Wing" US Patent
- 3- Rotary compressor for registration US Patent
- 4- Two phase flow Nozzle for water rockets Applied for US Patent
- 5- De-icing device for wings Applied for US Patent
- 6- Other inventions under development.

Board Member in:

- Saudi Society for Mechanical Engineers.
- Saudi Society for Technology Development and Transfer.
- Saudi Society for Aerospace engineering.

Professional Membership

- AIAA , American Institute for Aeronautics and Astronautics.
- ASME, American Society for Mechanical Engineering.
- Saudi Society for Mechanical Engineers.
- Saudi Society for Technology Development and Transfer.
- Saudi Society for Aerospace engineering.

Some of Publications:

1) Amro M. Al-Qutub and Mohammad O. Budair "**Experiments on the Flow Over a Flat Surface Impinged by a Supersonic Jet**" 31st AIAA/ASME/SAE/ASEE Joint Propulsion Conference 1995, (AIAA 95-2935).

2) Ahmed Z. Al-Garni, Ahmet Z. Shahin, and Amro M. Al-Qutub "**Cooling Aerospace Plane Using Hydrogen, Ammonia, and Krypton**" the 1997 AIAA Thermophysics conference, Atlanta, USA (AIAA-97-2491).

3) Amro Al-Qutub and D. Elrod "**Modified Rotordynamic Analysis for Honeycomb Seals**" the 4th Asia Pacific Conference on Multilateral Co-Operation in Space Technology and Applications 1-4 Dec. 1997, Bahrain.

4) Amro M. Al-Qutub **“Irreversibility to Heat Transfer Ratio In Concentric Spheres Transpiration Cooling”** The 12th International Symposium on Transport Phenomena, Turkey, July,2000.

5) Amro M. Al-Qutub I. M. Allam and T. W. Qureshi **"Wear Properties of 10% Sub-micron Al_2O_3 / 6061 Aluminum Alloy Composite"** Second International Tribology Conference SITC 2002, Zielona Gora, Poland, August 25-28,2002.

6) Amro. M. Al-Qutub, D.Elrod, and H. Coleman **“New Friction Factor Model and Entrance Loss Coefficient for Honeycomb Annular Gas Seals with Emphasis on Uncertainty Analysis”** ASME Journal of Tribology Vol. 122, p 622, July2000.

7) B.S.Yilbas M.M. Khalid, R. Kahraman, A. Al-Qutub, Z. Khan and M. Ouerfelli ” **The Corrosion Behavior of TiN Coated and Uncoated Incoloy 800 Alloy.”** Journal of Materials Engineering and Performance, Vol.7, ,P.812, Dec.1998.

8) Amro Al-Qutub and Ahmed Al-Garni**“ Comparison between Neural Network and Weible Models for Failure of Boeing 737 Engines,”** Japan Society for Aeronautics and Space Sciences, Vol. 42, No. 137, p 128, 1999.

9) B.S.Yilbas, M.Khaled, M.A.Gondal, M. Ouerfelli, Z.Khan, A.Al-Qutub, and B.El-Aili. **“Nano-Second Pulse laser treatment of Incoloy 800 HT Alloy - Corrosion Properties”** Journal of Optics and Laser in Engineering, Vol. 32, p157,1999.

10) Amro Al-Qutub **“Entropy Generation in Transpiration Cooling of Two Concentric Spheres” International Journal of Exergy**,Vol. 1,p 303,2001.

11) A. M. Al-Qutub, I.M. Allam, and T.W. Qureshi **" Wear Properties of 10% Sub-Micron Al_2O_3 / 6061 Aluminum Alloy Composite"** International Journal of Applied Mechanics, Vol. 7 (2002), pp.329-334.

12) Zuhair M. Gasem and Amro M. Al-Qutub **" Effect of Reinforcement on the Pitting Behavior of Powder Metallurgy Aluminum Alloy 6061/Alumina Metal Matrix Composite"**, 6th Saudi Engineering Conference, Dhahran Saudi Arabia, 2002.

13) Fahad Al-Sulaiman and Amro Al-Qutub **" Design of Small Centrifugal Compressors Performance Test Facility"** Proceeding of ASME Turbo Exbo GT2004-83828, 2004, Vienna, Austria.

14) Amro Al-Qutub and Fahd Al-Sulaiman **" Instrumentation Selection and Uncertainty Analysis for Performance Test of Small Centrifugal Compressors"** Proceeding of ASME Turbo Exbo, GT2004-83828, 2004, Vienna, Austria.

15) A. M. Al-Qutub, I.M. Allam and T.W. Qureshi " **Effect of Sub-Micron AL₂O₃ Concentration on Dry Wear Properties of 6061 Aluminum based composite**" Journal of Materials Processing Technology. V.166, Aug 2005.

- 16) A. M. Al-Qutub " **Energy consideration for designing supercharged Ram Jet Engines** " International Journal of Energy Research, V. 32, Feb 2008.
- 17) Khaded A. Al-Dehylan, Amro Al-Qutub and Syed Hafeez " Tensile Response of Aluminum Reinforced with Submicron Al₂O₃ Metal Matrix Composites" Proceedings of the International Conference on Recent Advances in Mechanical and Materials Engineering, May 2005, Kuala Lumpur.

Awards:

- **King AbdulAziz Medal of First class for the scientific achievement in Inventions 2004.**
- Prince Mohammad Bin Fahd Award for best research activity for my senior project in Supercharged ram jet engines, 1987
- Prince Bandar Bin Sultan award for academic achievement, 1996.
- Award of best faculty member for advising student's activities at KFUPM, 1999.
- Certificate of appreciation for the scientific achievement in the field of invention, from King Abdulaziz Foundation for the Gifted, 2001.