



The Department of MECHANICAL ENGINEERING



HOME

ABOUT US

NEWS

EVENTS

UNDERGRADUATE STUDIES

GRADUATE STUDIES

FACULTY & STAFF

RESEARCH

ALUMNI

GIVING

EMPLOYMENT

PHOTO GALLERIES

CANVAS LOGIN

MAKE A GIFT



Mechanical Engineering

Undergraduate Studies

[Return to Faculty Directory](#)

Gupta, Ashwani K.



Distinguished University Professor
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University of Maryland
College Park, MD 20742
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Research Interests

Swirl flows
Combustion
Sprays
High-temperature air combustion (HiTAC)
Biofuels / fuel reforming
Distributed combustion
Microcombustion
Alternative fuels
Pollution
Gas turbine combustion / Green combustion turbine
Nonintrusive diagnostics
Thermal destruction of solid and liquid wastes
Gasification and pyrolysis
Treatment of acid gases and sulfur chemistry
Sensors and laser diagnostics
Internal combustion engines
Fouling and deposition



[Click here for Dr. Gupta's CV and complete list of publications](#)

Background

Professor Ashwani K. Gupta has been a faculty member in the Mechanical Engineering Department at the University of Maryland, College Park since 1983, following six years at MIT as a member of the research staff in the Energy Laboratory and Department of Chemical Engineering, and three years at Sheffield University as an independent research worker and research fellow in the Department of Chemical Engineering and Fuel Technology. He has over 40 years of experience in Combustion engineering since his graduation from Southampton University in 1970, and is the author of over 700 technical papers, three books, 12 edited books, and 12 book chapters. In 2016, Dr. Gupta was elected to Fellowship of the Royal Aeronautical Society (RAeS), UK, the highest professional recognition bestowed by the RAeS. He is currently Honorary Fellow of American Society of Mechanical Engineers (ASME), and Fellow of American Institute of Aeronautics and Astronautics AIAA, Society of Automotive Engineers (SAE) and the American Association for the Advancement of Science (AAAS).

Education

- Ph.D., 1973, University of Sheffield, UK
- D.Sc., 1986, University of Sheffield, UK
- D.Sc., 2013, Southampton University, UK

Honors and Awards

- Honoris Causa Doctorate, University of Wisconsin, Milwaukee (2014)
- Honoris Causa Doctorate, King Mongkut University of Technology North Bangkok, Bestowed by the Princess of Thailand (2014)
- Honoris Causa Doctorate, University of Derby, UK (2015)
- Honorary Fellow of American Society of Mechanical Engineers
- Fellow, American Institute of Aeronautics and Astronautics, American Society of Mechanical Engineers, Society of Automotive Engineers, Institute of Energy U.K., Royal Aeronautical Society, U.K., and American Association for the Advancement of Science
- ASME George Westinghouse Gold Medal (1998)
- ASME James Harry Potter Gold Medal Award (2003)
- University of Maryland President Kirwan Research Award (2003)
- ASME James N. Landis Medal (2004)
- University of Maryland A. James Clark School of Engineering Outstanding Research Award (2006)
- ASME Worcester Reed Warner Medal (2008)
- Distinguished University Professor (2008)
- ASME Holly Medal (2010)
- ASME-AIME Percy Nichols Award (2011)
- AIAA Energy Systems Award (1990), Propellants and Combustion Award (1999), and Air Breathing Propulsion Award (2014)
- ASEE Ralph Coats Roe Award (2015)
- ASME Honorary Member (2016)
- AIAA Pendray Aerospace Literature Award (2017)
- ASME Soichiro Honda Medal (2018)
- Seven Best Paper Awards by AIAA and ASME
- Gave over 80 Plenary/Keynote/Invited presentations at international conferences and organizations during the past 15 years

Professional Memberships and Service

Editor in Chief of APEC Youth Scientist Journal
 Editor of Journal of Applied Energy
 Associate Editor of International Fuel Sprays and Combustion Dynamics
 Associate Editor of Journal of Sustainable Energy and Environment
 Editor, Energy and Engineering Science Series, CRC Press
 Associate Editor, J. Prop. and Power;
 Chair, Board of Boiler Rules, State of Maryland
 Chair, ASME Fuels and Combustion Tech. Division (1998–2000)
 Executive Committee Member, ASME Computers and Information in Engineering Division (1999–2000)
 Director of Propulsion and Energy, and Member of Board of Directors, AIAA (2006–2012)
 Oversight Chair, International Conference on Incineration and Thermal Treatment Technologies (IT3)

Selected Publications

2018

Burra, K. R. and Gupta, A.K.: Synergistic Effects in Steam Gasification of Combined Biomass and Plastic Waste Mixtures, Applied Energy, Vol. 211, pp. 230–236, 1 February 2018.
<https://doi.org/10.1016/j.apenergy.2017.10.130>

Burra, K. and Gupta, A. K.: Kinetics of Synergistic Effects in Co-pyrolysis of Biomass with Plastic Wastes, Applied Energy, Vol. 220, 2018, pp. 408–418.
<https://doi.org/10.1016/j.apenergy.2018.03.117>

Feser, J. S, Bassioni, G and Gupta, A. K.: Effect of Naphthalene Addition to Ethanol in Distributed Combustion, Applied Energy, Vol. 216, April 2018, pp. 1–7.
<https://doi.org/10.1016/j.apenergy.2018.02.090>

2017

Khalil, A. E. and Gupta, A. K.: The Role of CO₂ on Oxy-Colorless Distributed Combustion, Applied Energy, Vol. 188, February 15, 2017, pp. 466–474.
<http://dx.doi.org/10.1016/j.apenergy.2016.12.048>

ElMelih, A. M. AlShoabi, A. and Gupta, A. K.: Reformation of Hydrogen Sulfide to Hydrogen in the Presence of Xylene, Applied Energy, Vol. 203, October 2017, pp. 403–411.
<https://dx.doi.org/10.1016/j.apenergy.2017.06.064>

Khalil, A. E. and Gupta, A. K.: Acoustic and Heat Release Signatures for Swirl Assisted Distributed Combustion, Applied Energy, Vol. 193, May 1, 2017, pp. 125–138.
<https://dx.doi.org/10.1016/j.apenergy.2017.02.030>

2016

Gupta, A. K. Ibrahim, S. and AlShoabi, A.: Advances in Sulfur Chemistry for Treatment of Acid Gases, Progress in Energy and Combustion Science, 54, May 2016, pp. 65–92.
<http://dx.doi.org/10.1016/j.pecs.2015.11.001>

Scenna, R. and Gupta, A.K.: Partial Oxidation of JP8 in a Well Insulated Distributed Reactor, J. Fuel Processing Technology, Vol. 142, 2016, pp. 174–182,
<http://dx.doi.org/10.1016/j.fuproc.2015.10.014>

Khalil, A.E. and Gupta, A. K.: Fuel Property Effect on Distributed Combustion, Fuel, 171, 2016, pp. 116–124. <http://dx.doi.org/10.1016/j.fuel.2015.12.068>

2015

Khalil, A. and Gupta, A. K.: Thermal Field Investigation under Distributed Combustion Conditions, J. Applied Energy, Vol. 160, 2015, pp. 477–488.
<http://dx.doi.org/10.1016/j.apenergy.2015.09.058>

Ibrahim, S., AlShoabi, A. and Gupta, A. K.: Xylene and H₂S Destruction in High Temperature Flames under Claus Condition, Applied Energy, Vol 154, 15 Sep 2015, Pages 352–360.
<http://dx.doi.org/10.1016/j.apenergy.2015.05.017>

Scenna, R., and Gupta, A. K.: Partial Oxidation of JP8 in a Distributed Reactor, Fuel Processing Technology, Vol. 134, 2015, pp. 205–213. <http://dx.doi.org/10.1016/j.fuproc.2015.01.036>

2014

Wierzbicki, T., Lee, I. and Gupta, A. K.: Combustion of Propane with Pt and Rh Catalysts in a Meso-scale Heat Recirculating Combustor, Applied Energy, Vol. 130, October 2014, pp. 350–356.
<http://dx.doi.org/10.1016/j.apenergy.2014.05.069>

Ibrahim, S., AlShoabi, A. and Gupta, A. K.: Toluene Destruction in Thermal Stage of Claus Reactor with Oxygen Enriched Air, J. Applied Energy, Vol. 115, pp. 1–8, 2014,
<http://dx.doi.org/10.1016/j.apenergy.2013.10.060>

Khalil, A. and Gupta, A. K.: Clean Combustion in Gas Turbine Engines using Butyl Nonanoate Biofuel, *Fuel*, Vol. 116, pp. 522–528, 2014, <http://dx.doi.org/10.1016/j.fuel.2013.08.022>

2013

Singh, A., Yu, M., Bryden, K.M. and Gupta, A. K.: Investigation of Noise Radiation from a Swirl Stabilized Diffusion Flame with an Array of Microphones, *J. Applied Energy*, Vol. 112, pp. 313–324, December 2013. <http://dx.doi.org/10.1016/j.apenergy.2013.06.034>

Pang, C., Yu, M., Gupta, A. K. and Bryden, K. M.: Investigation of Smart Multifunctional Optical Sensor Platform and its Application in Optical Sensor Networks, *Smart Structures and Systems*, Vol. 12, No. 1, 2013, pp. 023–039, DOI: <http://dx.doi.org/10.12989/sss.2013.12.1.023>

Arghode, V. and Gupta, A.K.: Role of Thermal Intensity on Operational Characteristics of Ultra–Low Emission Colorless Distributed Combustion, *J. Applied Energy*, Vol. 111, November 2013, pp. 930–956. <http://dx.doi.org/10.1016/j.apenergy.2013.06.039>

2012

Shirsat, V., and Gupta, A. K.: Extinction, Discharge, and Thrust Characteristics of Methanol fueled Meso–Scale Thrust Chamber, *J. Applied Energy*, Vol. 103, pp. 375–392, November 2012, <http://dx.doi.org/10.1016/j.apenergy.2012.09.058>

Pang, C., Yu, M., Zhang, X.M., Gupta, A. K. and Bryden, K.M.: Multifunctional Optical MEMS Sensor Platform for Wireless Optical Sensor Networks, *Sensors and Actuators A: Physical*, Vol. 188, 2012, pp. 471–480. <http://ac.els-cdn.com/S092442471200180X/dx.doi.org/10.1016/j.sna.2012.03.016>

Arghode, V. and Gupta, A. K.: Jet Characteristics from a Submerged Combustion System, *J. Applied Energy*, Vol. 89, pp. 246–253, 2012, <http://dx.doi.org/10.1016/j.apenergy.2011.07.022>

2011

Abdelhafez, A. and Gupta, A. K., "Effect of Swirl on Mixing in Underexpanded Supersonic Airflow", *J. Propulsion and Power*, Vol. 27, No. 1, January–February, 2011, pp. 117–131.

Ahmed, I. I., Nipattummakul, N., Gupta A. K., "Characteristics of Syngas from Co–Gasification of Polyethylene and Woodchips", *J. Applied Energy*, Vol. 88, 2011, pp. 165–174.

Related News

Gupta Awarded ASME Soichiro Honda Medal

Recognized for outstanding achievement in developing improvements in the field of personal transportation. April 25, 2018

Gupta Awarded AIAA Pendray Aerospace Literature Award

Recognized for exemplary contributions to aerospace literature February 2, 2017

Gupta Named 2016 AAAS Fellow

Department of Mechanical Engineering Distinguished University Professor Ashwani Gupta named AAAS Fellow. November 21, 2016

Gupta Named ASME Honorary Member

Distinguished University Professor Ashwani Gupta has been named a 2016 Honorary Member of ASME. June 29, 2016

Gupta Receives Golden Elephant Award from Surindra Rajabhat University, Thailand

Mechanical Engineering Distinguished Professor Ashwani Gupta recognized for scientific achievement and academic collaboration. June 14, 2016

Professor Ashwani Gupta Awarded Honorary Doctorate

Gupta was honored with the degree by the University of Derby, United Kingdom. May 10, 2016

Mechanical Engineering Professors Receive DURIP Awards

Two professors win awards to support new research instrumentation. March 9, 2016

Gupta Receives ASEE 2015 Ralph Coats Roe Award

Distinguished University Professor Ashwani Gupta receives 2015 Ralph Coats Roe Award at ASEE annual conference. September 3, 2015

Gupta Receives AIAA Air Breathing Propulsion Award

Department of Mechanical Engineering Distinguished University Professor Ashwani Gupta receives 2014 AIAA Air Breathing Propulsion Award. May 29, 2014

Gupta and Khalil Receive ASME Melville Medal

Professor Ashwani Gupta and graduate student Ahmed Khalil awarded Melville Medal at the ASME 2013 International Congress and Exposition. December 20, 2013

Gupta Awarded Honorary Doctorate from King Mongkut's University of Technology North Bangkok

Her Royal Highness the Queen of Thailand to preside over ceremony. November 7, 2013

Gupta Awarded Higher Doctorate from the University of Southampton

Prof. Ashwani Gupta was awarded a D.Sc. for his contributions to the field of combustion engineering. August 20, 2013

Gupta Receives Honorary Doctorate

Professor Ashwani Gupta awarded honorary doctorate from the University of Wisconsin–Milwaukee. May 13, 2013

Ashwani Gupta Research Paper in Top 10 Downloaded at ASME Journal of Energy Resources Technology
Research paper debuted as fourth on list of top downloads in May. June 29, 2012

Ashwani Gupta Receives the Percy Nicholls Award

ME professor recognized for his scientific contributions in the field of solid fuels. July 25, 2011

Ashwani Gupta Awarded 2010 ASME Holley Medal

ME professor recognized for contributions to efficient alternative energy methods. December 13, 2010

ME Professor Re-Elected to American Institute of Aeronautics and Astronautics Board of Directors

Dr. Ashwani Gupta begins his second 3-year term as AIAA Director of Technical Propulsion and Energy Group. April 21, 2010

Ashwani Gupta Awarded the ASME Worcester Reed Warner Medal

Professor recognized for engineering publications by ASME. November 24, 2009

ME Students Tour Waste Management Company

Professor A.K. Gupta and ENME 489W students visit waste management company April 21, 2009

Clark School Sweeps OTC Awards

Thin battery, nano-velcro and key exchange system named top UM inventions. April 7, 2009

Energy 2030 Conference set for November in Abu Dhabi

ME department collaborates with Petroleum Institute for international event June 26, 2008

Ashwani K. Gupta Appointed Distinguished University Professor

Designation is the highest academic honor bestowed by the University of Maryland. February 1, 2008

Mechanical Engineering Recognizes Faculty Accomplishments

Edward B. Magrab honored at reception recognizing distinguished service to campus and department. May 16, 2007

Ashwani Gupta Receives A. James Clark School of Engineering Outstanding Research Award

On September 13, 2006 Professor Ashwani Gupta receives prestigious award. September 15, 2006

Ashwani Gupta Receives Outstanding Research Award

Professor Ashwani Gupta received the UM College of Engineering Outstanding Research Award given to recognize exceptionally influential research accomplishments by its faculty. September 13, 2006

Professor Ashwani Gupta Recognized by Outstanding Service & Best Paper Awards

Congratulations to Professor Gupta for these outstanding awards. June 15, 2006

Mechanical Engineering Honors Prof. James Wallace & Faculty

Mechanical Engineering faculty were honored at the Faculty Recognition Event and Dinner on Friday, May 12. May 15, 2006

ME STUDENTS TOUR WASTE-TO-ENERGY DISPOSAL PLANT

Ashwani Gupta's ENME 489W class visited the Wheelabrator Baltimore Company that converts domestic Wastes to Energy. March 15, 2005

ME STUDENTS TOUR WASTE-TO-ENERGY DISPOSAL PLANT

Students from the ENME 489W visited the Wheelabrator Baltimore Company that converts domestic Wastes to Energy. March 10, 2005

ME Students Tour Power Plant in DC

Professor Ashwani Gupta and his ENME 489A class toured the General Services Administration Power plant. November 4, 2004

ME STUDENTS TOUR WASTE DISPOSAL PLANT

ENME 489W class visited Baltimore Company that converts domestic Wastes to Energy on April 22, 2004. April 22, 2004

Ashwani Gupta Chosen for Presidential Committee

ME Professor Ashwani Gupta has been invited to be a member of the Nanotechnology Technical Advisory Group. June 15, 2003

Ashwani Gupta provides his students a visit to Waste to Energy Power Plant

Ashwani Gupta took his students to see the WM Baltimore Resco Waste to Energy Power Plant. April 15, 2003

College Faculty Win a Prestigious NASA Award

The award is granted for the establishment of one of the seven NASA URETI. June 13, 2002

Students Visit Waste-to-Energy Power Plant

Professor Ashwani Gupta's ENME 489W class visited the Waste Management Baltimore RESCO Waste to Energy Conversion Power Plant located in Baltimore. March 15, 2002

