

———— ASME 2017 TURBO EXPO ————

AWARDS PROGRAM

ASME INTERNATIONAL GAS TURBINE INSTITUTE

Charlotte, North Carolina, USA
June 26, 2017



The Awards

2017 ASME R. Tom Sawyer Award
2015 ASME Gas Turbine Award
2017 Scholar Award
2015 John P. Davis Award
2017 Aircraft Engine Technology Award
2017 Industrial Gas Turbine Technology Award
2017 Dilip R. Ballal Early Career Engineer Award

Award Committees

Honors & Awards Committee
Thomas Sattelmayer, Chair
Aircraft Engine Technology Award Committee
John Gulen, Chair
Industrial Gas Turbine Technology Award Committee
Keith Boyer, Chair

Closing Ceremony

Closing Ceremony
Outgoing Gas Turbine Segment Leaders, Outgoing Committee Chairs, 2017 Student Best Poster Winners, Student Advisory Committee Travel Award Recipients and Young Engineer Turbo Expo Participation Award Recipients will be recognized during the Exposition Closing Ceremony on Thursday, June 29.

Best Paper and Best Tutorial Award Winners will be recognized at the appropriate Committee Meeting.

2017 ASME R. Tom Sawyer Award

Awarded to an individual who has made important contributions to advance the purpose of the gas turbine industry and the ASME International Gas Turbine Institute over a substantial period of time. The contribution may be in any area of Institute activity, but must be marked by sustained forthright efforts.



Dr. Alan H. Epstein, *Vice President Technology and Environment, Pratt & Whitney*

Dr. Epstein is responsible for setting the direction for and coordinating technology across Pratt & Whitney. He also provides strategic leadership in the investment, development, and incorporation of technologies that reduce the environmental impact of Pratt & Whitney's world-wide products and services.

Prior to joining Pratt & Whitney, Dr. Epstein was the R.C. Maclaurin Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT), and currently holds an appointment there as Professor Emeritus.

Dr. Epstein has served on many panels and committees advising the US Government and is currently the chair the NASA Aeronautics and Space Engineering Board. He has won many international awards for his work in propulsion including the ASME Gas Turbine Award, the AIAA Dryden Lectureship in Research, the International Gas Turbine Institute Gas Turbine Technology Award, and the Canadian Aeronautics and Space Institute Turnbull Lectureship. Dr. Epstein is a member U.S. National Academy of Engineering, a Fellow of the AIAA, ASME, and of the Royal Aeronautical Society. He received B.S., M.S., and Ph.D. degrees from MIT.

2015 ASME Gas Turbine Award

The Gas Turbine Award was established in 1963 to be given in recognition of an outstanding contribution to the literature of noncombustion gas turbines thermally combined with nuclear or steam power plants.

RECEIVING THE 2015 GAS TURBINE AWARD FOR THEIR PAPER:

“The Effect of Aspect Ratio On Compressor Performance”



Dr. Robert Miller is Professor of Aerothermal Technology at the University of Cambridge and Director of the Rolls-Royce Whittle Laboratory University Technology Centre. His research covers a wide range of flows in aero engines, gas turbines, tidal turbines and domestic appliances. He obtained his M.A. and Ph.D. at St Catherine's College, Oxford University. His Ph.D. was on the subject of transonic turbine blade row interaction. After the completion of his Ph.D., he continued his close collaboration with Rolls-Royce as a Spooner Junior Research Fellow at New College Oxford. In 2001, he was appointed to a Lectureship in Turbomachinery and Fellowship at Gonville and Caius College Cambridge. In 2013, he was appointed Professor of Aerothermal Technology and Director of the Whittle Rolls-Royce University Technology Centre.

He works extensively with industry, presently undertaking collaborative research projects with Rolls-Royce, Mitsubishi, Siemens and Dyson. Robert is a member of IGTI's Turbomachinery Committee. His honors include the Institution of Mechanical Engineers Thomas Hawksley Gold Medal 2010, the ASME Gas Turbine Award 2010, a number of ASME IGTI Turbomachinery and Heat Transfer Committee best paper awards (2014, 2010, 2008, 2007, 2005) and an AIAA Air Breathing Propulsion best paper award 2008.



Dr. Ho-On To earned his Master's degree in Engineering at Trinity College, Cambridge University, passing with Distinction in 2010. He remained in Cambridge to complete his Ph.D. in 2016 at the Whittle Laboratory where he was supervised by Dr. Robert Miller. His Ph.D. work centered on understanding the effect of aspect ratio in axial compressors.

Since submitting his Thesis in May 2016, Dr. To was appointed as a EPSRC Knowledge Transfer Fellow. This position has allowed him to spend time working between the Whittle Laboratory and Rolls-Royce Derby within the Fan & Compressor Aerodynamics team. The focus of his current research is in developing the next-generation of preliminary design methods. Dr. To has recently been awarded a Junior Research Fellowship at Christ's College, Cambridge University, a position which will allow him the freedom to explore and establish his research interests in the forthcoming years.

2017 Scholar Award

The International Gas Turbine Institute Scholar Award is bestowed upon an individual who submits a learned and comprehensive paper that makes a significant and timely contribution to the science and practice of gas turbine engineering. The Scholar presents the award-winning paper as a lecture to an audience of his peers.



Dr. Ronald Bunker received his Ph.D. in Mechanical Engineering from Arizona State University in 1988. Dr. Bunker has been performing and directing research related to all aspects of turbine hot gas path heat transfer and cooling through the year 2016. After receiving his Ph.D., he was awarded a one-year post-doctoral research fellowship from the Alexander von Humboldt Foundation of Germany under which he carried out research at the Karlsruhe Institute of Technology. Dr. Bunker subsequently joined GE Aircraft Engines in Cincinnati performing heat transfer design and analysis for both large commercial engines and advanced military engines, primarily in the critical cooling areas of the high-pressure turbine vanes and blades.

From 1993 through 2013, he worked on research and development activities at GE Global Research focused on turbine vane and blade internal and external heat transfer, combustor cooling, and manufacturing methods supporting both GE Aviation and GE Power & Water. In 2013, he transferred to GE Aviation as a Consulting Engineer supporting advanced designs and intellectual property.

Dr. Bunker has been granted over 100 US patents, with many more pending. He is the author of over 125 technical publications, refereed papers, and book chapters. He received the 2008 ASME Gas Turbine Award, the 2014 Aircraft Engine Technology Award, served on the Board of the ASME International Gas Turbine Institute for seven years, is a Fellow of ASME, and former Editor for the ASME Journal of Turbomachinery.

2015 John P. Davis Award

Awarded to a paper that focuses on new or continuing gas turbine applications, identifies planning, installation, operating and/or maintenance problems and their solutions, and exemplifies candid exposure of real-world problems and solutions.

RECEIVING THE 2015 John P. Davis AWARD FOR THEIR PAPER:

Organic Rankine Cycle System for Effective Energy Recovery in Offshore Applications:
A Parametric Investigation with Different Power Rating Gas Turbines (GT2015-42292)



Dr. Rakesh K. Bhargava is the Founder and President of Innovative Turbomachinery Technologies Corp., a company providing innovative engineering solutions in the areas of turbomachinery used in the off-shore, refinery, power generation, chemical, and pipeline industries. His more than 35 years of experience encompasses review of fabrication and assembly of rotating machinery packages, field problems resolution, failure analysis, inspection of repairs and rejuvenation of gas turbine components, and technical expertise in commercial litigations involving rotating machines.

He has been actively involved with ASME International Gas Turbine Institute where he has served as Chair of the Industrial & Cogeneration and the Oil & Gas Applications committees. He is currently serving as Associate Editor of the ASME Journal of Engineering for Gas Turbines and Power. He is a Fellow and Associate Fellow of ASME and AIAA, respectively.



Lisa Branchini is a Post Doctoral Researcher in fluid machines and energy systems at the University of Bologna, Department of Industrial Engineer. She is an energetic engineer, graduating in 2009 “cum laude” from the University of Bologna. After receiving her MSc degree, she started her Ph.D. focusing on innovative solutions to overcome the limiting aspect in waste to energy conversion process. From her doctoral thesis, a monography has been published. During the Ph.D. program, she spent six months abroad with an internship fellowship at The Penn State University where her research focused on innovative solutions to integrate renewable sources into the grid with conventional fossil fuel and storage systems.

In 2012, she was awarded by ASME International Gas Turbine Institute with the “Young Engineer Travel Award” for the study “Handling wind variability using gas turbines”. Recent research activities focus on the exhaust energy recovery with Organic Rankine Cycle technology. In 2015, the ASME Industrial and Cogeneration Committee assigned to her the “Best Paper Award”.

2015 John P. Davis Award



Michele Bianchi was born in Siena, Italy, in 1968. He graduated with honors in Mechanical Engineering from the University of Bologna, Italy, and he obtained the Ph.D. in Energy Systems at the Politecnico di Bari, Italy.

His main research activities concern advance energy system, with particular reference to combined heat and power production, complex gas turbine cycles, power augmentation technologies and Organic Rankine Cycle experimental analysis. He first attended ASME Turbo Expo in 1999 in Indianapolis and has since then taken part actively with the Conference organization.



Andrea De Pascale was born in Bologna, Italy, in 1976. He studied at the University of Bologna, where he graduated “cum laude” in Mechanical Engineering in 2000 and he got a Ph.D. in Thermal Fluid Machines and Energy Systems in 2005, discussing his Ph.D. thesis with title: “Combustion and NOx formation modelling in DLN burners for industrial gas turbines”.

His main research activity is currently focused on experimental performance tests and numerical modeling of advanced energy systems, micro-cogeneration and organic Rankine cycles. He is author of more than 90 scientific papers in peer reviewed congresses and journals. He is an ASME member and member of the Industrial and Cogeneration and the Oil and Gas IGTI Technical Committees. Since 2005, he has been awarded three times with the best paper award within the Turbo Expo conferences.



Valentina Orlandini has started a Postdoctoral Research activity at the beginning of 2017 in fluid machines and energy systems at the University of Bologna, Department of Industrial Engineer. She is an energetic engineer and graduated in 2013 from the University of Bologna. After receiving her MSc Degree, she started her Ph. D focusing on Organic Rankine Cycles (ORC) and she will defend her thesis at the middle of year 2017.

At the University of Bologna, her research activity is also related with experimental investigation on micro-scale ORC systems and she spent the last two years on the development of a test rig installed in the laboratories of the Department of Industrial Engineer. Her main research activity is currently focused on experimental performance tests, data analysis and numerical modeling of ORC.

2017 Aircraft Engine Technology Award

“For sustained outstanding contributions to the field of air breathing propulsion through inspiring leadership, education and research, having major impacts on operational capability, performance, and design.”



Professor Michael G. Dunn is Professor and Director of the OSU Gas Turbine Laboratory- Department of Mechanical Engineering at The Ohio State University. His research interests are gas turbine heat transfer, aerodynamics and aeromechanics. His current research projects are: Co-principal Investigator on the Gulde Consortium Aeromechanics Award, in which the program is in its 2nd year, and he is also Co-principal Investigator on the Siemens Program for Aeromechanics.

2017 Industrial Gas Turbine Technology Award

For outstanding contributions and industry leadership in advanced gas turbine research, design, development and deployment.



Dr. Eisaku Ito is a senior general manager in marketing and innovation at the headquarters of MHI. He had extensive experimental and numerical simulation experience while working at MHI R&D Center in Takasago. He successfully applied Computational Fluid Dynamics analyses for the development of three dimensional design systems with inviscid and viscous analyses for multi-stage turbines. The resulting systems are widely used by MHI and MHPS to evaluate gas turbine designs from the aero, heat transfer, vibration, structure and strength point of view.

2017 Dilip R. Ballal Early Career Award

Awarded to an individual who has made significant contributions in the gas turbine industry within the first five years of their career.



Dr. Subith Vasu is an assistant professor at the Center for Advanced Turbomachinery and Energy Research (CATER), Mechanical and Aerospace Engineering at the University of Central Florida, Orlando, Florida, USA. He has been at CATER since 2012, after a brief post-doc appointment at Sandia Combustion Research Facility.

He is an expert in gas turbine combustion chemistry, diagnostics and sensors for combustion and emissions, shock tube physics, and direct-fired supercritical CO₂ power cycles. Currently, his research group consists of about 15 graduate students and post-docs. His previous students have taken up positions in the gas turbine industry and academia. He teaches both graduate and undergraduate classes in combustion, thermodynamics, energy systems, and propulsion.

ASME IGTI Committee Best Papers

Aircraft Engine

FULL SCALE TURBOFAN DEMONSTRATION OF A DEPLOYABLE ENGINE AIR-BRAKE FOR DRAG MANAGEMENT APPLICATIONS

Parthiv N. Shah, Gordon Pfeiffer, Rory Davis, Thomas Hartley & Zoltan Spakovszky
GT2016-56708

SENSITIVITY ANALYSIS AND EXPERIMENT VALIDATION OF TRANSIENT PERFORMANCE PREDICTIONS FOR A SHORT-RANGE TURBOFAN

Maria V. Culmone, Nicolas Garcia-Rosa & Xavier Carbonneau
GT2016-57257

Ceramics

THE APPLICATION OF CERAMIC MATRIX COMPOSITE TO LOW PRESSURE TURBINE BLADE

Fumiaki Watamabe, Takeshi Nakamura & Ken-ichi Shinohara
GT2016-56614

Combustion, Fuels & Emissions

APPLICATION OF A TURBULENT JET FLAME FLASHBACK PROPENSITY MODEL TO A COMMERCIAL GAS TURBINE COMBUSTOR

Alireza Kalantari, Elliot Sullivan-Lewis & Vince McDonell
GT2016-58059

PREDICTION OF CONFIRMED FLAME FLASHBACK LIMITS USING BOUNDARY LAYER SEPARATION THEORY

Vera Hoferichter, Christoph Hirsh & Thomas Sattelmayer
GT2016-56155

INFLUENCE OF HEAT TRANSFER AND MATERIAL TEMPERATURE ON COMBUSTION INSTABILITIES IN A SWIRL BURNER

Christian Kraus, Laurent Selle, Thierry Poinsot, Christoph Arndt & Henning Bockhorn
GT2016-56368

Controls, Diagnostics & Instrumentation

FAULT DETECTION USING REDUCED RANK LINEAR MODELS

Cody Allen, Chad Holcomb & Mauricio de Oliveira
GT2016-57916

Cycle Innovations

EFFECTS OF ROTOR-SPEED-RATIO AND CROSSWIND INLET DISTORTION ON OFF-DESIGN PERFORMANCE OF CONTRA-ROTATING PROPELLING UNIT

Stavros Vouros, Theofilos Efstathiadis, Alexandros Chasoglou & Anestis Kalfas

GT2016-57273

EXPERIMENTAL INVESTIGATION OF A SOFC/MGT HYBRID POWER PLANT TEST RIG-IMPACT AND CHARACTERIZATION OF A FUEL CELL EMULATOR

Martina Hohloch, Andreas Huber & Manfred Aigner

GT2016-57747

Education

A COMPUTATIONAL AND EXPERIMENTAL COMPRESSOR DESIGN PROJECT FOR JAPANESE AND BRITISH HIGH-SCHOOL STUDENTS

Sam Grimshaw, Carl Sequeira & Max Hewkin-Smith

GT2016-56231

Electric Power

BEYOND BRAYTON CYCLE; IT IS TIME TO CHANGE THE PARADIGM

Seyfettin (John) Gulen

GT2016-57979

Fans & Blowers

NUMERICAL STUDY ON THE PASSIVE CONTROL OF THE AEROELASTIC RESPONSE IN LARGE AXIAL FANS

Alessio Castorrini, Alessandro Corsini, Anthony Sheard & Franco Rispoli

GT2016-57306

Heat Transfer

COOLING INJECTION EFFECT ON A TRANSONIC SQUEALER TIP: PART 2 ANALYSIS OF AEROTHERMAL INTERACTION PHYSICS

Haiteng Ma, Qiang Zhang, Li He, Zhaoguang Wang & Lipo Wang

GT2016-57587

HEAT TRANSFER AND PRESSURE LOSS MEASUREMENTS IN ADDITIVELY MANUFACTURED WAVY MICROCHANNELS

Kathryn Kirsch & Karen Thole

GT2016-56510

COMPARISON OF A SINGLE AND DOUBLE LIP RIM SEAL GEOMETRY

Svilen Savov, Nicholas Atkins & Samiu Uchida

GT2016-56317

Industrial & Cogeneration

INVESTIGATION OF DIFFERENT OPERATION STRATEGIES TO PROVIDE BALANCE ENERGY WITH AN INDUSTRIAL CHP PLANT USING DYNAMIC SIMULATION

Steffen Kahlert & Hartmut Spliethoff

GT2016-57166

A METHOD TO EVALUATE THE HEAT EXCHANGER RETROFIT FOR INDUSTRIAL GAS TURBINES BASED ON TECHNICAL AND ECONOMIC PERSPECTIVE

Waleed Albusaidi & Pericles Pilidis

GT2016-56145

Manufacturing Materials & Metallurgy

CHARACTERIZATION OF LAM-FABRICATED POROUS SUPERALLOYS FOR TURBINE COMPONENTS

Brandon Ealy, Luisana Calderon, Wenping Wang, Ranier Valentin, Ilya Mingareev,

Martin Richardson & Jay Kapat

GT2016-58080

Marine

OPERATIONAL EXPERIENCE OF THE SSS (SYNCHRO-SELF-SHIFTING) CLUTCH FOR NVAL MARINE APPLICATIONS

Morgan Hendry & Nicholas Bellamy

GT2016-57819

Microturbines, Turbochargers & Small Turbomachines

OPERABILITY LIMITS OF TUBULAR INJECTORS WITH VORTEX GENERATORS FOR A HYDROGEN FUELLED RECUPERATED 100kW CLASS GAS TURBINE

Stefan Bauer, Balbina Hampel & Thomas Sattelmayer

GT2016-56381

OIL-FREE AUTOMOTIVE TURBOCHARGERS: DRAG FRICTION AND ON-ENGINE PERFORMANCE COMPARISONS TO OIL-LUBRICATED COMMERCIAL TURBOCHARGERS

Keun Ryu & Zachary Ashton

GT2016-57855

Oil & Gas Applications

THE IMPACT OF RECIPROCATING COMPRESSOR PULSATIONS ON THE SURGE MARGIN OF CENTRIFUGAL COMPRESSORS

Klaus Brun, Sarah Simons & Rainer Kurz

GT2016-56025

Steam Turbines

THERMAL MODELLING OF AN INTERMEDIATE PRESSURE STEAM TURBINE BY
MEANS OF CONJUGATE HEAT TRANSFER SIMULATION AND VALIDATION

Dominik Born, Peter Stein, Gabriel Marinescu, Stefan Koch & Daniel Schumacher

GT2016-57247

NUMERICAL INVESTIGATION OF BOUNDARY LAYERS IN WET STEAM NOZZLES

Joerg Starzmann, Fiona Hughes, Alexander White, Marius Gruebel & Damian Vogt

GT2016-57598

Structures & Dynamics

TOWARDS A FLEXIBLE IMMERSED BOUNDARY METHOD FOR FLUID/STRUCTURE
INTERACTIONS IN TURBOMACHINERY APPLICATIONS

Gianluca Iaccarino, Sangjin Lee, Jungchan Kim & Youngho Ju

GT2016-56801

A SIMPLE MODEL FOR IDENTIFYING THE "FLUTTER BITE" OF FAN BLADES

Fanzhou Zhao, Nigel Smith & Mehdi Vahdati

GT2016-56336

A WATER LUBRICATED HYBRID THRUST BEARING: MEASUREMENTS AND
PREDICTIONS OF STATIC LOAD PERFORMANCE

Luis San Andres, Dara Childs & Stephen Phillips

GT2016-56349

Supercritical CO₂ Power Cycles

DYNAMIC MODEL OF A 10MW SUPERCRITICAL CO₂ RECOMPRESSION BRAYTON
CYCLE

Fabio Lambruschini, Eric Liese, Stephen E. Zitney & Alberto Traverso

GT2016-56459

Turbomachinery: Axial Turbines

SECONDARY FLOW CONTROL IN LOW ASPECT RATIO VANES USING SPLITTERS

Christopher Clark, Graham Pullan, Eric Curtis & Frederic Geonaga

GT2016-56625

Turbomachinery: Compressors

DESIGN OF COMPRESSOR ENDWALL VELOCITY TRIANGLES

Kiran Auchoybur & Robert J. Miller

GT2016-57396

Turbomachinery: Radials

EXPERIMENTAL DETERMINATION OF MECHANICAL STRESS INDUCED BY
ROTATING STALL IN UNSHROUDED IMPELLERS OF CENTRIFUGAL COMPRESSORS

Philipp Jenny & Yves Bidaut

GT2016-56436

Wind Energy

EFFECTS OF AIRFOIL'S POLAR DATA IN THE STALL REGION ON THE ESTIMATION
OF DARRIEUS WIND TURBINE PERFORMANCE

*David Marten, Alessandro Bianchini, Georgios Pechlivanoglou, Francesco Balduzzi,
Christian Navid Nayeri, Giovanni Ferrara, Christian Oliver Paschereit & Lorenzo Ferrari*

GT2016-56685

ASME IGTI Committee Best Tutorial

Oil & Gas Applications

COMPRESSOR FOULING MECHANISMS AND MODELING

Rainer Kurz, Klaus Brun, Michele Pinelli

24-12

Outgoing ASME Gas Turbine Segment Leaders

PIERO COLONNA

TIM LIEUWEN

Save the Dates:

ASME Turbo Expo 2018

Lillestrøm, Norway

June 11 - 15, 2018

ASME Gas Turbine India 2017

Bangalore, India

December 7 - 8, 2017

Outgoing Committee Chairs

COMBUSTION, FUELS & EMISSIONS

IBRAHIM YIMER

CYCLE INNOVATIONS

VASSILIOS PACHIDIS

INDUSTRIAL & COGENERATION

MUSTAPHA CHAKER

MARINE

DESIREE DESHMUKH

MICROTURBINES, TURBOCHARGERS & SMALL TURBOMACHINES

JEFFREY ARMSTRONG

OIL & GAS APPLICATIONS

TIM ALLISON

ORC POWER SYSTEMS

JOS VAN BUIJTENEN

STEAM TURBINE

THOMAS THIEMANN

SUPERCRITICAL CO₂

KLAUS BRUN

TURBOMACHINERY

PAT CARGILL

WIND ENERGY

KEN VAN TREUREN

Young Engineer Turbo Expo Participation Award Recipients

Alessio Abrassi	David Holst	Stefano Puggelli
Valeria Andreoli	Seongpil Joo	Janith Samarasinghe
Myeonggeun Choi	Julia Ling	Prashant Singh
Arifur Chowdhury	Anandkumar Makwana	Natalie R. Smith
Ward De Paepe	Georg Atta Mensah	Adam Gabor Vermes
Adam Feneley	Alom Mohammed Nur	Sheng Wei
Seyed M. Ghoreyshi	Aravin Daas Naidu	

2017 Student Advisory Committee Travel Award (SACTA)

Michael Branagan	Simone Giorgetti	Nguyen LaTray
James Braun	David Gonzalez Cuadrado	Maria Rinaldi
Bogdan Cezar Cernat	Niclas Hanraths	Deepanshu Singh
Theofilos Efstathiadis	Shane Haydt	Cori Watson
Masha Folk	Alexander Heinrich	Suo Yang
Chiara Gastaldi	Thomas Jackowski	Lv Ye
	Salman Javed	Lisa Zander



**CONGRATULATIONS TO ALL AWARD RECIPIENTS
AND THANK YOU TO ALL ASME IGTI COMMITTEE
AWARD REPRESENTATIVES WHOSE WORK ASSISTS
THE AWARDS AND HONORS CHAIR AND THE
READING COMMITTEE.**