



# ANNUAL REPORT FY2020

*The American Society of Mechanical Engineers*®  
**ASME**®

  
**ASME**®  
SETTING THE STANDARD

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<b>1880</b>	Year ASME was Established
<b>100,000+</b>	ASME Members
<b>28,000+</b>	ASME Student Members
<b>20,000+</b>	ASME Early Career Engineer Members
<b>140+</b>	Countries with ASME Members
<b>3,800+</b>	Active Volunteer Leaders
<b>560+</b>	ASME Standards
<b>100+</b>	Countries using the ASME Boiler & Pressure Vessel Code

## OUR MISSION

ASME's mission is to advance engineering for the benefit of humanity.

## OUR VISION

ASME's vision is to be the premier resource for the engineering community globally.

## OUR VALUES

In performing its mission, ASME adheres to these core values:

- Embrace integrity and ethical conduct
- Embrace diversity and respect the dignity and culture of all people
- Nurture and treasure the environment and our natural and man-made resources
- Facilitate the development, dissemination, and application of engineering knowledge
- Promote the benefits of continuing education and of engineering education
- Respect and document engineering history while continually embracing change
- Promote the technical and societal contribution of engineers

## OUR CREDO

Setting the Standard..

- In Engineering Excellence
- In Knowledge, Community, and Advocacy
- For the benefit of humanity



# LETTER FROM THE PRESIDENT AND EXECUTIVE DIRECTOR/CEO

**For 140 years, ASME's efforts to advance the art and science of mechanical engineering for the benefit of humanity have been fueled by the expertise and the passionate commitment of our members and volunteers. Today, ASME serves a diverse global community of technical professionals who practice, teach, study, and share mechanical engineering expertise as the embodiment of mankind's ambition to master the challenges of life on earth.**

**We know that 2020 will be remembered as an unprecedented year by everyone who experienced it. This year's once-in-a-century events have challenged us, brought out the best in us as a global team and family, and even created unexpected opportunities. We are pleased to report that ASME continues to navigate the challenges of 2020 successfully and can proudly point to remarkable achievements in a host of areas.**

## NAVIGATING THE CRISIS

This past March, as it became apparent that the world was facing its first truly global pandemic in a century, ASME's leadership took decisive action: ASME offices around the world – including our headquarters in New York City – closed almost immediately. ASME's nearly four hundred plus staff members around the world pivoted in real time to the work-from-home orientation that has become the world's new normal. In less than a week, all of ASME's work was being done in homes around the world, connected virtually to conform with new social-distancing guidelines and minimize transmission of the COVID-19 virus.

## ASME COVID-19 TASK FORCE EFFORTS

Beyond immediate efforts to manage the crisis, ASME also formally convened a COVID-19 Task Force to centralize and streamline the Society's response to the array of needs certain to arise within our global community. Led by Christine Reilly, ASME's Senior Director for Strategy & Innovation, ASME's COVID-19 Task Force guided us to implement a host of responses and offerings including:

- ASME's renowned INSPIRE K-12 learning program and resources were made available at no cost to students and families affected by the crisis.
- ASME's online learning resources for engineers were made available at deep discounts.
- ASME's editorial team moved to provide real-time updates on all relevant technical developments, including advances in ventilators and the production of personal protective equipment.
- ASME Conferences and Industry Events were moved entirely online and made available to registrants at no cost.
- ASME's Government Relations team hosted online congressional briefings and published white papers aimed at aiding lawmakers' skillful response to challenges in areas of ASME expertise (e.g., supply chain engineering and management).
- ASME expanded career resources offerings to help any ASME members or volunteers whose employment was affected during the crisis.
- Engineering for Change (E4C) shifted focus to provide resources and information on best practices for supplying needed resources to under-resourced communities worldwide and the professionals who serve them (i.e., localized production of PPE).
- In partnership with the Food and Drug Administration, Manufacturing USA, and National Institutes of Health, and under the rubric of America Makes, ASME hosted webinars to build engineer-physician partnerships and amplify the reach and availability of NIH's national repository of medical and engineering design resources.

## VIRTUAL INDUSTRY EVENTS & CONFERENCES

As mentioned, ASME's renowned Industry Events and Conferences programming shifted from the physical world to virtual. Remarkably, this change allowed greater access to ASME conference programming to more people around the world than ever before. We have seen truly robust levels of participation at a wide range of ASME virtual events – more than one might have imagined possible. This phenomenal response shows that ASME public programming is more than ready for its next chapter, and that virtual access to ASME programs provides a vital opportunity for many thousands around the world for whom traveling to participate was not an option.

## NEXT GENERATION ENGINEERS CAPITAL CAMPAIGN

We are very pleased to report that, after much preparation, the ASME Foundation formally launched The Campaign for Next Generation Engineers *Who Transform the World* on July 1. To ensure success in what will be the most ambitious effort in its history – with a five-year goal to raise over \$50 million – ASME Foundation Executive Director Kathleen Lobb recently completed recruitment of an extraordinary new team of development professionals to realize this vision. We are also very pleased to share that ASME Past President Keith Roe will serve this major effort as both chair of the ASME Philanthropy Committee and as chair of the Capital Campaign.

## MEMBERSHIP PILOT INITIATIVE

In its continuing effort to deliver our members the most value possible, ASME's Membership team launched an extensive pilot process – based on market research – to study the evolving needs and preferences of the many constituencies of ASME members. This extensive process is slated to continue throughout FY21 and into the first part of FY22. While still early in the pilot period, the ASME Membership team anticipates offering new and/or additional benefits along with some membership plan customization that will enable members to choose the benefits that best suit their needs each year. Once complete, the data collected via this targeted pilot program will inform the creation of a new membership framework to be rolled out to ASME's membership worldwide.

## DIVERSITY & INCLUSION

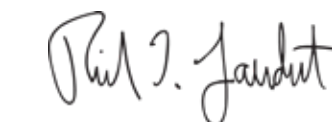
We are proud to report that ASME's Board of Governors has now voted to broaden and formalize ASME's Diversity & Inclusion efforts. Mindful of the Society's responsibility to support the needs of all its constituents, the Board of

Governors formally declared that ASME Diversity & Inclusion efforts – to encourage, support, and celebrate the diverse voices of our employees, volunteers, customers, and communities – are of paramount importance to the Society as a whole. In pursuing this ongoing work, ASME will adhere to three guiding principles: we are a global, diverse, and inclusive Society; we are a Society that adheres to the highest ethical standards, and we are a Society focused on the next generation.

This has been an extraordinary year both for ASME and the world. We are confident that our Society has weathered an historic storm and is emerging not just intact but strengthened and ready for what will come next. On behalf of the Board of Governors and ASME's leadership team, we thank you and all ASME stakeholders for your passion, your enthusiasm, and your dedication to the Society we all care so much about. Your continued participation, commitment, and contributions to ASME, especially in a year like 2020, make it possible for our Society to remain a preeminent resource for the global engineering community. All we can say is thank you.



**Thomas Costabile, P.E.**  
Executive Director and  
Chief Executive Officer



**Richard T. Laudnat, P.E.**  
President





**Richard T. Laudonat, P.E.**  
ASME President (2019–2020)  
Former Plant Manager  
GDF Suez, now ENGIE (Retired)



**Thomas Costabile, P.E.**  
Executive Director/CEO  
ASME



**Said Jahanmir, Ph.D.**  
ASME Immediate Past President (2018–2019)  
Assistant Director for Federal Partnerships  
Office of Advanced Manufacturing, NIST



**Thomas Costabile, P.E.**  
Executive Director/CEO  
ASME



**Robert N. Pangborn**  
Secretary/Treasurer

## SOCIETY OFFICERS



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ASME President-Elect  
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President and Founder  
Allen Research Tech-  
Services, Inc.



**Stuart W. Cameron, CEng**  
Consultant  
Doosan Power Systems



**John Delli Venneri**  
Assistant Secretary/  
General Counsel



**William Garofalo**  
Chief Financial Officer



**Joe R. Fowler, Ph.D., P.E.**  
Former President  
and Co-Founder  
Stress Engineering Services,  
Inc. (Retired)



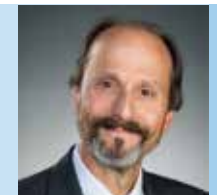
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Technical Advisor-Drill Bits  
Product Line  
Baker Hughes



**Laura E. Hitchcock**  
Consultant  
Former Senior Standards Specialist and  
Corporate Project Manager  
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**Samuel J. Korellis, P.E.**  
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Oak Ridge National Laboratory



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Manufacturing, National  
Institute of Standards  
and Technology



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Associate Professor of Materials  
Science and Engineering  
Georgia Institute of Technology



**John M. Mulvihill**  
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and Engagement



**George Papadopoulos, Ph.D.**  
Technical Events and Content



**Callie L. Tourigny**  
Student and Early  
Career Development



**Karen A. Thole, Ph.D.**  
Professor and Department Head of  
Mechanical and Nuclear Engineering  
The Pennsylvania State University

## FY 2020 BOARD OF GOVERNORS



The ASME Foundation is committed to inspiring and supporting current and future generations of engineers with programs designed to help them achieve and succeed in creating lasting social impact.

Today more than ever, the world needs new ways to make our lives safer, healthier, and more sustainable. Engineers will bring these world-changing innovations to life. Through its comprehensive arc of programs, the ASME Foundation is dedicated to igniting a passion for engineering among the best and the brightest young minds and supporting them from early inspiration and learning to career engagement and transformational innovations.

# BOARD OF DIRECTORS

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Consolidated Edison of NY (Retired)



**Kenneth R. Balkey, P.E.**  
Director  
Westinghouse Electric Co. (Retired)



**Keith Roe, P.E.**  
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Executive Director,  
ASME Foundation  
Managing Director,  
ASME Philanthropy



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H&P, Inc. (Retired)



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ASME



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**Tom Costabile, P.E.**  
Executive Director/CEO  
ASME



**Gretchen Crutchfield**  
Development Specialist,  
ASME Philanthropy



**Kathleen M. Lobb**  
Executive Director,  
ASME Foundation  
Managing Director,  
ASME Philanthropy



**Anand Sethupathy**  
Managing Director,  
ASME Programs

# ASME FOUNDATION OVERVIEW

As the fundraising arm of the American Society of Mechanical Engineers, the ASME Foundation is charged with seeking donations to support a broad array of philanthropic initiatives aimed at fulfilling ASME's mission to advance engineering for the benefit of humanity.

The past year was one of dramatic growth and change for the ASME Foundation, marked by several milestone accomplishments, including key additions to the leadership team; a new website and newsletter; a widely attended Philanthropic Impact event at IMECE; a reorganized Foundation Board and a newly established ASME Philanthropy Committee; and an approved plan for an ambitious, five-year capital campaign to fuel programs that empower the next generation of engineers.

## CENTRAL TO THE FOUNDATION'S FUNDRAISING STRATEGY IS BUILDING AWARENESS OF ASME'S PROGRAMS IN THREE KEY AREAS:

- **EDUCATION THAT INSPIRES**, igniting a lifelong passion for engineering in K-12 through college and graduate school.
- **CAREERS THAT MATTER**, propelling early-career engineers toward a lifetime of meaningful work and engagement.
- **IDEAS THAT INNOVATE**, nurturing breakthrough ideas to improve quality of life in underserved communities.

Underpinning all this work is the determination to build tomorrow's diverse and inclusive engineering workforce, where opportunity is more equitably extended to groups who are significantly underrepresented in the engineering profession.

For example, expanding our signature INSPIRE STEM Readiness program to more schools in economically disadvantaged districts around the United States is opening a window on the possibilities of an engineering career to thousands of school-age children. Our ASME Scholarships make an engineering education possible for promising college students for whom an engineering degree might otherwise be out of reach.

Successful events like ASME E-Fests® and ISHOW help engineering students and social impact entrepreneurs, respectively, advance their innovative designs. And when it launches next year, our new Career Engagement Center will connect both early-career and more seasoned engineers to opportunities for career path simulation, mentoring, volunteering, and fulfilling their potential in the profession.

One year ago, this report announced a new day for the ASME Foundation. On the following pages, you will glimpse what the past 366 new days have brought and all the good that results from generous support of the ASME Foundation.

Find out more about the ASME Foundation at [www.asmefoundation.org](http://www.asmefoundation.org)

## COVID-19 RESPONSE: PIVOTING TO DIGITAL

Imagine that two of your most successful programs depend on bringing together hundreds of people from around the world, all organized into highly collaborative teams, to meet, compete, present ideas, and share information. Now imagine a global health emergency shutting down travel and large gatherings. What then?

If you are the ASME programs team, you pivot.

*"...more than 300 universities in 47 countries logged into ASME's first-ever all-digital E-Fest, and the E-Fest YouTube channel registered over 5,000 views during the event, and hundreds more since then."*

Led by Managing Director Anand Sethupathy, the ASME Programs Department reengineered its signature in-person ASME E-FESTS® for 100% online participation—then did it again for the acclaimed ASME ISHOW, too. With only weeks to plan and no existing model to rely on, these two highly successful programs, both fueled by ASME donors, somehow managed not only to meet their pre-pandemic goals but to exceed them.

A robust 1,775 unique registrants—largely college engineering students—representing more than 300 universities in 47 countries logged into ASME's first-ever all-digital E-Fest, and the E-Fest YouTube channel registered over 5,000 views during the event, and hundreds more since then.

ASME's Innovation Showcase (ISHOW) events are prestigious competitions where social impact entrepreneurs from around the world vie for access to seed capital, technical advice, and business guidance to scale their hardware prototypes to market-ready products. Typically held three times per year in Kenya, India, and the United States, all three 2020 ISHOWs were not only 100 percent online events, but easily as exhilarating and gratifying as any that preceded them.

"The overwhelming success of both E-Fest Digital and virtual ISHOW provides convincing evidence that future versions of these signature events will incorporate more online participation," Sethupathy said. "What began as a response to the coronavirus pandemic actually enhanced access and engagement, providing valuable learning for future events."

Find out more about ASME E-FESTS® and ISHOW at [www.asmefoundation.org/programs/](http://www.asmefoundation.org/programs/)



## CAPITAL CAMPAIGN UPDATE: INTERVIEW WITH KEITH ROE

At its May 2020 meeting, the ASME Board of Governors unanimously approved a five-year capital campaign with the purpose of raising significant funds to expand existing philanthropic programs and develop a few new ones.

The fundraising effort, called the Campaign For Next Generation Engineers *Who Transform the World*, officially launched on July 1, 2020 with longtime ASME volunteer Keith Roe serving as Campaign Chairman. Mr. Roe is a past president of ASME and currently serves as Chair of the ASME Philanthropy Committee.

### **Why a capital campaign, and why now?**

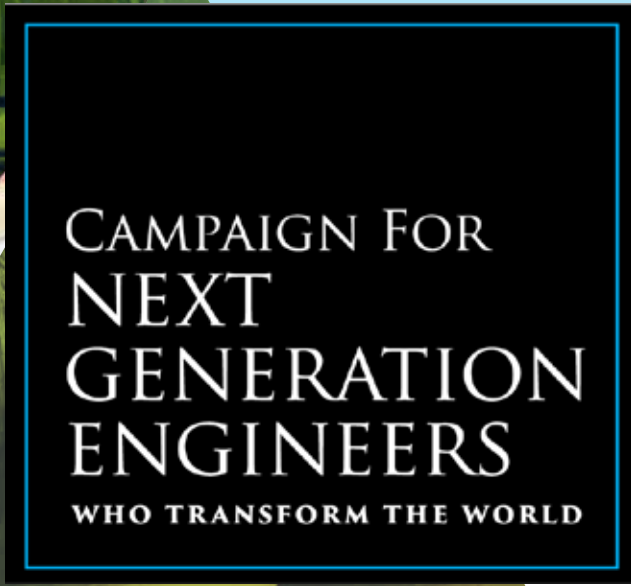
In the broadest sense, the purpose is to support and grow ASME's charitable initiatives. Some of these are well known, like scholarships, E-Fests, and the Federal Fellows program, which has provided technical advice to federal government policymakers for the past 47 years. But the campaign also funds many other ASME outreach programs, such as the INSPIRE STEM education program that is provided free to hundreds of K-12 schools nationwide and is expanding to a million-plus students a year with our new collaboration with Discovery Education. In the Engineering for Global Development space, the campaign will support Engineering for Change (E4C), which develops research, knowledge, and solutions to local challenges in under-resourced communities. The Foundation also raises funds for ASME ISHOW, the Innovation Showcase that helps budding social entrepreneurs scale hardware prototypes.

There are plenty more examples of ASME Philanthropy, but a key priority for all of them is to build the engineering workforce of the future that includes more women, more people from underrepresented communities, and more engineers with multidisciplinary training to meet complex global challenges we increasingly face that engineers must help solve.



*“Engineering is about solving problems, about making things better and improving everyone’s quality of life. That is what makes engineering so much fun and so rewarding.”*

KEITH ROE, P.E.



### **How do you know these philanthropic programs are having the desired impact?**

There are two ways: we know from data they are having the kind of impact we are expecting. We use metrics to track our programs and monitor results, and we are launching an SROI (Social Return On Investment) framework where we can more effectively measure social impact.

Beyond metrics, if you want a firsthand look at the results of our work, I recommend going to the ASME Foundation website and clicking on the “Our Impact” tab to find a number of inspirational videos that tell beneficiaries’ stories in their own words.

### **What motivates you to be so involved with ASME philanthropy and the capital campaign?**

For over 40 years, I gained a great deal from ASME in my career and my personal development. Between early learning and leadership opportunities to building strong personal and business relationships, I contributed to ASME but received much more in return. So, diving into the campaign is in part giving back, part paying it forward.

The second reason is even more important. Engineering is about solving problems, about making things better and improving everyone’s quality of life. That is what makes engineering so much fun and so rewarding. But today there are so many urgent challenges. And as these global challenges grow more and more complex, engineers are at the heart of solving them, advancing society, and further improving the quality of life around the world. That is exactly what ASME is all about—taking on complex challenges to benefit humanity. It is our mission!

ASME has great programs that help build the next generation of engineers. But implementing these programs requires an expanded and sustainable funding base to scale our programs and grow our ranks. What a wonderful opportunity it is to raise funds for such a great purpose and contribute to making a better world.

**Keith Roe was president and CEO of Burns & Roe Group, a global engineering and construction company. He served as ASME president in 2016–2017.**





## DIVISIONS AND THE FOUNDATION COLLABORATE

In February, at the annual ASME Group Leadership Development Conference, Vicki Risinger presented to the group as chair of the Petroleum Division (PD) about the division's multifaceted collaboration with the ASME Foundation. Her message: our division broadens our philanthropic impact by partnering with the ASME Foundation.

"We are always looking for opportunities for cross-sector collaboration, and through our work with the Foundation, we have been able to reach a larger audience—with staff support—for greater impact," said Risinger.



VICKI RISINGER

When the PD elevated its scholarships program to the ASME Foundation, it carved out division-specific criteria and made the application available on ASME.org, increasing visibility to a global student audience. Among the criteria that were important to the PD were that scholarships be open to both undergraduate and graduate students in the U.S. and internationally, and that they address the underrepresentation of women in the field by targeting 50 percent or more of the funding to female recipients. While the Foundation staff performs an initial sort of the applications, the PD Executive Committee leaders participate in final selections, so volunteers are still very much engaged in the process.

The PD's involvement extends to supporting an ASME Federal Fellow, who serves as a technical advisor to a federal government policymaker, and recognizing key members through Society-level awards, such as the recently established Lakshmi Singh Early Career Leadership Award.

Both the PD and the Power Division are generous supporters of ASME's INSPIRE STEM Readiness program.



MIDDLE SCHOOL STUDENTS PARTICIPATE AT ASME'S INSPIRE STEM READINESS EVENT.

According to Jason Lee, an engineer at Babcock Power Systems and a member of the Power Division executive committee, among the division's highest philanthropic priorities are K-12 STEM education, because "education is important to our mission," and fostering greater diversity in the profession, a goal the Power Division advances both by supporting ASME INSPIRE and through special events dedicated to women in engineering.

ASME's Bioengineering Division (BED) focuses its philanthropic work on the engineering student community, where it funds student paper competitions at national conferences and subsidizes student attendance at important industry events. "Not to sound cliché, but it's true, they're the future of our division," said Professor

Kristen Billiar, principal investigator and department head at Worcester Polytechnic Institute and a leader of ASME's Bioengineering Division.



ASME E-FEST HUMAN POWERED VEHICLE CHALLENGE

For Division members who want a hands-on experience, ASME E-Fests® offer an opportunity to engage directly with college students as judges of an

engineering competition, as hosts of a tabletop exhibit, or as volunteer mentors. Members also participate as judges, technical advisors, and mentors in ASME's Innovation Showcase, or ISHOW, events. *[See related story on how these events pivoted to digital experiences in response to the coronavirus pandemic.]*

The ASME Foundation staff can be a valuable resource to division and section leadership, available both to plan and execute philanthropic activities. "Collaboration can result in broader and more far-reaching impact than any one division or section can accomplish on its own," notes Stephanie Viola, the Foundation's director of Corporate and Foundation Relations. "Our divisions are a rich vein of talent and resources that we are eager to harness to ASME's robust philanthropic efforts."

## PHILANTHROPIC IMPACT: CHANGING LIVES

### Johane Bracamonte

When he was named the recipient of ASME's 2020 Richard J. Goldstein Energy Lecture Award, Dr. James Truchard elected to donate his honorarium to the ASME Foundation to fund a scholarship for a deserving engineering student. That student is Johane Bracamonte, doctoral candidate in mechanical engineering at Virginia Commonwealth University (VCU) and a second-year student member of ASME.

"It is a great honor to receive the James Truchard Scholarship," Bracamonte said. "It's particularly meaningful and thrilling, since LabView and other National Instruments products have an immeasurable impact on my professional career." National Instruments, which Dr. Truchard co-founded and led as president and CEO, is a leading global producer of automated test equipment and virtual instrumentation software.

Bracamonte earned bachelor's and master's degrees in mechanical engineering at the Central University of Venezuela, where he used Dr. Truchard's company's products to modernize the school's Thermodynamic Laboratories. Today, his research at the Engineered Tissue Multiscale Mechanics and Modeling Laboratory (ETM3) at VCU uses medical magnetic resonance imaging coupled to numerical simulation of cardiovascular mechanics to improve the understanding of cardiovascular diseases, their diagnosis, and treatment.

"It is reassuring being supported and recognized, but when the pat on the back comes from the hand of one of the world's most prominent engineering entrepreneurs, it is not only an honor but also a challenge," said Bracamonte. "Thanks to this scholarship, I feel inspired and compelled to excel in my studies and work."



### Eurydice Kanimba

Few people have traveled a greater distance, both literally and figuratively, to build a successful engineering career than Dr. Eurydice "Eury" Kanimba. The three-time ASME Foundation Scholarship recipient was born in Rwanda the year before the tragic 1994 genocide devastated her native country. "The genocide molded my path to do better for my family," Kanimba said. "After facing so much tragedy, it's like we had a mission to accomplish."

She received the ASME Willis F. Thompson Memorial Scholarship in 2013 as an undergraduate at Midwestern State University in Texas, where she learned both English and the language of engineering. She joined the ASME student chapter in search of a supportive community, gaining what she describes as an opportunity to start forming relationships in an organization "that actually cares about what you're doing. It made me feel more hopeful." By her senior year at MSU, Kanimba was elected president of the ASME student chapter.

Accepted into the doctoral program at Virginia Polytechnic Institute and State University, Kanimba received her second and third ASME Foundation scholarships, which she credits with making her doctoral studies possible. "My research involved modeling bio-inspired structures, like the cuttlebone, the shell of the cuttlefish. With so much compressive strength, it is useful in the design of spacecraft that must withstand high pressures on reentering the atmosphere."

She was active in the Virginia Tech mentoring program, where she shared her story "so that a young girl starting out in engineering can see what's possible. It gives me joy to give back."

Today, Dr. Kanimba is an advisory engineer at IBM and, through her support of the ASME Foundation, is still giving back. "To me, the P in Ph.D. stands for problem-solver," she said.

Watch a video of Eury Kanimba's story at [www.asmefoundation.org/our-impact](http://www.asmefoundation.org/our-impact)

# ARCHIMEDES CLUB

## MEMBERS

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John J. Corcoran	Richard Pawliger
Lynden F. Davis	Craig D. Redding
Daniel Deckler	Victoria A. Rockwell
John N. Eustis	K. Keith Roe
Nancy & Roland Fitzroy	Ester & Richard Rosenberg
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Marc W. Goldsmith	Allen Selz
Richard J. Goldstein	Evelyn & William Shoop
Kalan Guiley	Betsy & Terry Shoup
Philip W. Hamilton	Kay & Robert T. Simmons
Frederick Hanzalek	Susan H. Skemp
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Doris & Warren Hutchings	John A. Swanson
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Henry M. Koenig	Roy P. Trowbridge
Milton Leonard	William A. Weiblen
Warren R. Leonard	James D. Woodburn
June Ling	Robert Wurtz
Thomas G. Loughlin	Justin Young
E. Roland Maki	Myrna & Sam Y. Zamrik
Sonia & Raj Manchanda	



**SINCE 2003, THE ARCHIMEDES CLUB HAS UNITED THE ASME PLANNED GIVING COMMUNITY IN THE COMMON GOAL OF SUPPORTING PROGRAMS THAT WILL HELP ADVANCE THE ENGINEERING PROFESSION.**

## MEMBERS

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William Borter	Regina Hoffmann	K. Keith Roe
Betty Bowersox	Kathryn Holmes	Steven Rutter
Elah Bozorg-Grayel	Debbie Holton	Edward Scherer
Stephen Brunkhorst	Min Hong	Anand Sethupathy
Charles Bruny	Pei-Hua Hu	Guangxian Shen
James Buchwald	Patricia Hunt	Albert Shih
Jian Cao	Jennifer Jewers Bowlin	Cornelius Shih
Nicholas Cedrone	Martin Jun	Terry Shoup
Demeng Che	Serope Kalpakjian	Xuedao Shu
Dong-woo Cho	William Kerr	Kendrick Simila
Y. Kevin Chou	Albert Kilert	Robert Skaggs
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Andrew Drouin	Soohun Lee	David Thompson
James Drouin	Xiaochun Li	Shih-Ming Wang
Paul Drouin	Mingxing Lin	Steve Hsueh Ming Wang
R. Drouin	Psang Dain Lin	Thomas Washburn
Rene Drouin	Kathleen Lobb	Weichao Wu
Bryan Erler	Ming-chyuan Lu	Chun Xu
Xuanlai Fang	Ravi Mahajan	Jiachen Xu
Joe Fowler	Robert Manross	Justin Young
Patricia Gallaher	David McDonnell	Mohamed Zarrugh
Richard Goldstein	Paula McKenie	Huyue Zhao
D. Yogi Goswami	Christian Meszaros	Ping Zou
Jeanette Graham	C. Dan Mote	
Bobby Grimes		

# ALEXANDER HOLLEY SOCIETY



**HOLLEY SOCIETY MEMBERS PROVIDE ASME WITH CRITICAL RESOURCES TO ADVANCE THE ENGINEERING PROFESSION AND HELP TRANSFORM THE WORLD THROUGH UNIQUE ENGINEERING-BASED PROGRAMS.**

# 2019 ASME HONORS AND AWARDS



The ASME Honors and Awards program, funded through the ASME Foundation by individual awards and endowment funds, pays tribute to engineering achievement and contributions to the profession.

**Reginald I. Vachon** (photo right) was selected to receive the ASME Medal, the Society's highest award. Dr. Vachon was honored for his contributions to the development and commercialization of an innovative strain measurement technology that optically monitors a scalable strain gauge to measure strain, cold working, crack initiation, and structural health. ASME President Richard T. Laudonat presented the award to Dr. Vachon at the 2019 ASME Annual Awards Dinner, which was held in November at the ASME International Mechanical Engineering Congress and Exposition in Salt Lake City, Utah.

## HONORARY MEMBERS

Bilal M. Ayyub, Ph.D., Fellow  
Amir Faghri, Ph.D., Fellow  
D. Yogi Goswami, Ph.D., Fellow

## ASME MEDAL

Reginald I. Vachon, Eur. Ing., Ph.D., Fellow

## ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS AWARD

Nancy L. Johnson, Fellow

## BERGLES-ROHSENOW YOUNG INVESTIGATOR AWARD IN HEAT TRANSFER

Yongjie Hu, Ph.D., Member

## BLACKALL MACHINE TOOL & GAGE AWARD

Burak Sencer, Ph.D., Member  
Shingo Tajima

## PER BRUEL GOLD MEDAL FOR NOISE CONTROL AND ACOUSTICS

Karl Grosh, Ph.D., Fellow

## EDWIN F. CHURCH MEDAL

Andreas A. Polycarpou, Ph.D., Fellow

## DANIEL C. DRUCKER MEDAL

John L. Bassani, Ph.D., Fellow

## WILLIAM T. ENNOR MANUFACTURING TECHNOLOGY AWARD

Steven J. Skerlos, Ph.D., Member

## FLUIDS ENGINEERING AWARD

Nadine Aubry, Ph.D., Fellow

## FREEMAN SCHOLAR AWARD

Upendra S. Rohatgi, Ph.D., Member

## Y.C. FUNG EARLY CAREER AWARD

Grace D. O'Connell, Ph.D., Member

## HENRY LAURENCE GANTT MEDAL

Margaret G. McCullough, Member

## RICHARD J. GOLDSTEIN ENERGY LECTURE AWARD

Steven Chu, Ph.D.

## GAS TURBINE AWARD

Christoph Brandstetter, Dr.-Ing.  
Maximilian Jüngst  
Heinz-Peter Schiffer, Dr.-Ing., Member

## MELVIN R. GREEN CODES AND STANDARDS MEDAL

Michael Merker, Member

## J.P. DEN HARTOG AWARD

Singiresu S. Rao, Ph.D., Fellow

## HEAT TRANSFER MEMORIAL AWARDS

(SCIENCE)  
Satwindar S. Sadhal, Ph.D., Fellow

(ART)

Dereje Agonafer, Ph.D., Fellow

(GENERAL)

James Klausner, Ph.D., Fellow

## MAYO D. HERSEY AWARD

Lavern D. Wedeven, Ph.D., Member

## HENRY HESS EARLY CAREER PUBLICATION AWARD

Benjamin Werbner  
Minhao Zhou  
Grace D. O'Connell, Ph.D., Member

## PATRICK J. HIGGINS MEDAL

Christopher J. Freitas, Ph.D., Fellow

## SOICHIRO HONDA MEDAL

Masayoshi Tomizuka, Ph.D., Fellow

## INTERNAL COMBUSTION ENGINE AWARD

Peter K. Senecal, Member

## WARNER T. KOITER MEDAL

K.T. Ramesh, Ph.D., Fellow

## ROBERT E. KOSKI MEDAL

Peter A.J. Achten, Dr.Ir., Member

## ALLAN KRAUS THERMAL MANAGEMENT MEDAL

John R. Thome, Ph.D., Member

## FRANK KREITH ENERGY AWARD

Gang Chen, Ph.D., Fellow

## BERNARD F. LANGER NUCLEAR CODES AND STANDARDS AWARD

Richard W. Swayne, Member

## WILFRED C. LaROCHELLE CONFORMITY ASSESSMENT AWARD

Edgar A. Whittle, Member

## GUSTUS L. LARSON MEMORIAL AWARD

Yong Zhu, Ph.D., Fellow

## H.R. LISSNER MEDAL

Jennifer S. Wayne, Ph.D., Fellow

## MACHINE DESIGN AWARD

Gregory S. Chirikjian, Ph.D., Fellow

## CHARLES T. MAIN STUDENT LEADERSHIP AWARDS

(GOLD)  
Sandy Karam, Member

(SILVER)

Abhijith J. Kumar, Member

## McDONALD MENTORING AWARD

Naomi C. Chesler, Ph.D., Fellow

## M. EUGENE MERCHANT MANUFACTURING MEDAL OF ASME/SME

Sujeet Chand, Ph.D.

## VAN C. MOW MEDAL

Tony J. Huang, Ph.D., Fellow

## NADAI MEDAL

Ellen M. Arruda, Ph.D., Fellow

## SIA NEMAT-NASSER EARLY CAREER AWARD

Sinan Keten, Ph.D., Member

## ROBERT M. NEREM EDUCATION AND MENTORSHIP MEDAL

Kenneth R. Diller, Ph.D., Fellow

## BURT L. NEWKIRK AWARD

Alison C. Dunn, Ph.D., Member

## EDWARD F. OBERT AWARD

John H. Lienhard V, Ph.D., Fellow

## OLD GUARD EARLY CAREER AWARD

Lee Clemon, Ph.D., Member

## RUFUS OLDENBURGER MEDAL

Huei Peng, Ph.D., Fellow

## OUTSTANDING STUDENT SECTION ADVISOR AWARD

Mohammad Mahinfalah, Ph.D., Fellow

## PERFORMANCE TEST CODES MEDAL

Steven A. Scavuzzo, Member

## PI TAU SIGMA GOLD MEDAL

Jesse Capececiatro, Ph.D., Member

## CHARLES RUSS RICHARDS MEMORIAL AWARD

Pradeep Sharma, Ph.D., Fellow

## RALPH COATS ROE MEDAL

Charles F. Bolden, Jr.

## SAFETY CODES AND STANDARDS MEDAL

Martin P. Schroeder

## R. TOM SAWYER AWARD

Om P. Sharma, Ph.D., Fellow

## MILTON C. SHAW MANUFACTURING RESEARCH MEDAL

Srinivasan Chandrasekar, Ph.D., Fellow

## RUTH AND JOEL SPIRA OUTSTANDING DESIGN EDUCATOR AWARD

Janet K. Allen, Ph.D., Fellow

## SPIRIT OF ST. LOUIS MEDAL

Kevin G. Bowcutt, Ph.D., Member

## J. HALL TAYLOR MEDAL

Walter J. Sperko, Fellow

## ROBERT HENRY THURSTON LECTURE AWARD

Yonggang Huang, Ph.D., Member

## TIMOSHENKO MEDAL

J.N. Reddy, Ph.D., Fellow

## WORCESTER REED WARNER MEDAL

Arun R. Srinivasa, Ph.D.

## GEORGE WESTINGHOUSE MEDAL (GOLD)

Hameed Metghalchi, Sc.D., Fellow

## SAVIO L-Y. WOO TRANSLATIONAL BIOMECHANICS MEDAL

Rita M. Patterson, Ph.D., Fellow

## HENRY R. WORTHINGTON MEDAL

Akira Goto, Ph.D., Member

## S.Y. ZAMRIK PRESSURE VESSEL AND PIPING MEDAL

Young W. Kwon, Ph.D., Fellow

*“To set the cause above renown, to love the game beyond the prize”*

SIR HENRY JOHN NEWBOLT



# FY 2020 YEAR IN REVIEW

## WOMEN IN ENGINEERING

At IMECE 2019 in November, ASME hosted a special Women in Engineering Reception to provide women attending the conference with an opportunity to network with their peers. The reception featured of a panel of diverse women engineers, including ASME Past President Victoria Rockwell (at the podium) who discussed the best career advice they received as a young professional, followed by a lively post-panel discussion with attendees. More than 100 ASME leaders and members attended the event, which demonstrated ASME's ongoing commitment to promoting and advancing diversity and inclusion within ASME and the engineering profession.



## E-FEST SOUTH AMERICA

Approximately 500 students, educators, ASME members, and other attendees participated in the 2019 E-Fest South America event held August 8–10 in Lima, Peru. The three-day event, which highlighted the fun and excitement of the engineering profession, featured a variety of robust competitions and other activities, including a job and education fair, an ASME student member event and a student section workshop, special sessions including a Women in Engineering Panel Session, and several career development events and workshops.



## WISC EVENT IN MINNESOTA

ASME Executive Director/CEO Tom Costabile attended the first-ever Women in Standards & Certification (WISC) event, during ASME Boiler Code Week in Minneapolis, Minn. The event was established to highlight and celebrate the valued participation and contributions of women on ASME's various Standards & Certification (S&C) committees and provide women engineers attending Boiler Code Week with the opportunity to meet and network with one another. ASME Past President Madiha El Mehelmy Kotb (photo center) served as the guest speaker at the event held August 5.



## ENGINEERING HISTORY

ASME designated the West Point Foundry in Cold Spring, NY, as a Historic Mechanical Engineering Landmark on October 5. A leading producer of ordinance to the U.S. Army and Navy during its years of operation, the foundry became a leader in American industrial engineering, design, and manufacturing for steam and marine engines. It was home to a diverse and talented workforce, including ironworkers, draftsmen, and engineers, who played a significant role in building early generations of mechanical engineers in the U.S. The Foundry played an important role as a supplier of steam engines, mill, and other heavy machinery during the early years of American industrialization. ASME President Richard Laudonat presided over the designation ceremony.



## BRAKING INNOVATION

George Westinghouse's revolutionary development of the automatic air brake transformed braking systems in trains by providing a built-in safeguard that allowed the entire train to come to a halt if air pressure escaped or if train cars became separated. The Westinghouse Automatic Brake's triple-value system proved to be a significant improvement over previous mechanical or direct-air brake systems. The automatic air brake led to dramatic improvements in safety for brakemen and expanded the popularity of rail travel in North America. In various forms, Westinghouse's air-brake system has been almost universally adopted. On Oct. 19, ASME President-elect Bryan Erler (photo right) presented the Society's landmark designation to Wabtec, Inc. in Pittsburgh, PA.



## ECLIPSE INTERNS ZOOM IN

On June 26, members of the ECLIPSE (Early Career Leadership Intern Program to Serve Engineering) class of 2020 presented their final project via Zoom to the ASME Board of Governors, Past Presidents, Senior Vice Presidents, and other volunteer and staff leaders. The title of the presentation was "The Case for Employer Support: How ASME Can Help." The interns shared findings from a survey of their own employers on what benefits employers see from their early-career employees' involvement in professional societies.



## RICHARD J. GOLDSTEIN ENERGY AWARD

Nobel Prize recipient and former U.S. Secretary of Energy Steven Chu (photo standing) delivered the keynote address at the inaugural Richard J. Goldstein Energy Award Lecture, on November 12. Held during the 2019 IMECE event in Salt Lake City, Utah, Dr. Chu became the first recipient of the new ASME award, which recognizes pioneering contributions to the frontiers of energy engineering science and technology, including energy policy and environmental impact. The award was endowed by ASME Past President Richard Goldstein (photo seated).



## IAB MEETS IN WASHINGTON, D.C.

Digital transformation, specifically how digital engineering concepts affect design, implementation, and lifecycle management of mechanical systems, was the focus of the fall 2019 ASME Industry Advisory Board (IAB) meeting. The board considered the topic both in general and in the context of critical industries during the meeting, which was held September 23–24 in Washington, D.C. More than 40 IAB members, ASME staff and guest presenters participated in the meeting, and nine IAB executives participated in 22 Congressional visits with their House and Senate members or staff.



## CELEBRATING ENGINEERING

The 2019 ASME Annual Awards Dinner: Celebrating Engineering Achievement was held November 11 at the Calvin L. Rampton Salt Palace Convention Center in Salt Lake City. The event was hosted by special guest emcee Mo Rocca, CBS News correspondent and the host of the network's The Henry Ford's Innovation Nation. The event featured an array of performers who provided entertainment for the dinner attendees. Eight of the engineering profession's leading innovators were honored for their contributions and achievements.



## CHAMPIONS OF STEM

Engineering students from the University of the District of Columbia led ASME's participation at the second annual Smithsonian/National Museum of African American History and Culture STEM Day, held in Washington, D.C. Representatives of the ASME K-12 STEM Programs staff joined with ASME students to champion Science, Technology, Engineering and Math, and the power of thinking like an engineer at the exhibition, which was held on February 22 in conjunction with Engineers Week.



## BRYAN ERLER BECOMES PRESIDENT

During a special Salute to Leadership event held June 16 at ASME's virtual Annual Meeting, Bryan A. Erler, P.E., was introduced as the 139th president of ASME. Erler has been an active member of ASME since 1991. He has been an executive and expert in the nuclear power industry for over 45 years with significant leadership roles and responsibilities in the designing of electric power plants as an owner and senior vice president of Sargent & Lundy. He is currently president of Erler Engineering, Ltd., where he serves as a consultant to the power industry.



## INSPIRE ON THE RISE

Since March 2020, as schools began complying with the COVID-19 quarantine protocol, ASME's INSPIRE program saw participation rise to 8,698 students and 294 new schools using the program. Overall, more than 90,000 students from 1,200+ schools across the United States participated in the program. ASME INSPIRE is a scalable STEM education program that delivers a mind-expanding learning experience primarily to middle and high school students who might otherwise never be exposed to the opportunities available in engineering. ASME INSPIRE uses videos, animations, and gaming scenarios to build students' knowledge of engineering careers and core STEM concepts.



## PAST PRESIDENT JOSEPH A. FALCON

Joseph A. Falcon, P.E., the 111th president of ASME, died on July 18, 2019. He was 96 years old. Falcon, an ASME Fellow and Honorary Member, joined the Society as a student member in 1939. He had a distinguished career as an engineer, consultant, and educator, and was a dedicated and enthusiastic supporter of ASME during his more than 60-year career in engineering. Among his many leadership positions at ASME, he served on several committees and boards, including the Board of Governors, and later became president of ASME from 1992–1993.



The American Society Of Mechanical Engineers  
**CONSOLIDATED STATEMENT OF FINANCIAL POSITION**  
 June 30, 2020

**FINANCIALS**

<b>Assets</b>	<b>General</b>	<b>Designated and restricted</b>	<b>Consolidating adjustments</b>	<b>Total</b>
Cash	\$ 7,310,937	5,250,269	—	12,561,206
Accounts receivable, less allowance for doubtful accounts of \$420,000 in 2020	22,704,987	1,003,443	(10,332,226)	13,376,204
Due from The ASME Foundation, Inc.	—	103,256	(103,256)	—
Inventories	151,585	222,675	—	374,260
Prepaid expenses, deferred charges, and deposits	4,143,033	40,158	—	4,183,191
Investments	78,425,210	48,785,075	—	127,210,285
Property, furniture, equipment, and leasehold improvements, net	20,465,793	12,971	—	20,478,764
<b>Total assets</b>	<b>\$ 133,201,545</b>	<b>55,417,847</b>	<b>(10,435,482)</b>	<b>178,183,910</b>
<b>Liabilities and Net Assets</b>				
<b>Liabilities:</b>				
Accounts payable and accrued expenses	\$ 6,310,689	12,077,483	(10,232,226)	8,155,946
Due to The ASME Foundation, Inc.	103,256	—	(103,256)	—
Accrued employee benefits	10,463,080	—	—	10,463,080
Deferred publications revenue	6,677,762	—	—	6,677,762
Deferred dues revenue	2,263,217	—	—	2,263,217
Accreditation and other deferred revenue	19,286,829	92,492	—	19,379,321
Deferred rent	8,665,985	—	—	8,665,985
Payroll Protection Program loan	9,324,283	—	—	9,324,283
<b>Total liabilities</b>	<b>63,095,101</b>	<b>12,169,975</b>	<b>(10,335,482)</b>	<b>64,929,594</b>
<b>Net assets:</b>				
Without donor restrictions	70,106,444	26,703,382	(100,000)	96,709,826
With donor restrictions	—	16,544,490	—	16,544,490
<b>Total net assets</b>	<b>70,106,444</b>	<b>43,247,872</b>	<b>(100,000)</b>	<b>113,254,316</b>
<b>Total liabilities and net assets</b>	<b>\$ 133,201,545</b>	<b>55,417,847</b>	<b>(10,435,482)</b>	<b>178,183,910</b>

	General	Designated and restricted	Consolidating adjustments	Total
<b>Operating revenue:</b>				
Membership dues, publications, accreditation, conference fees, and other revenue by sector/operating unit:				
Codes and standards	\$ 55,213,200	54,974	—	55,268,174
Conformity assessment	24,146,730	348	—	24,147,078
Learning and development	4,199,278	—	—	4,199,278
Programs	866,553	2,205,354	(1,745,194)	1,326,713
Technical events and content	5,740,341	1,117,245	(827)	6,856,759
Publications	14,151,541	—	—	14,151,541
Constituent engagement	11,195,738	—	—	11,195,738
Miscellaneous revenue	345,537	773,950	(773,950)	345,537
<b>Total operating revenue</b>	<b>115,858,918</b>	<b>4,151,871</b>	<b>(2,519,971)</b>	<b>117,490,818</b>
<b>Operating expenses:</b>				
Program services by sector/operating unit:				
Codes and standards	18,028,055	490,813	(43,243)	18,475,625
Conformity assessment	15,194,184	10,309	—	15,204,493
Learning and development	7,372,495	—	—	7,372,495
Programs	5,782,065	2,323,419	(1,514,043)	6,591,441
Technical events and content	12,076,461	2,206,896	(38,519)	14,244,838
Publications	11,453,908	—	—	11,453,908
Technology advancement and business development and industry events	4,082,811	—	—	4,082,811
Global public affairs	5,289,389	695,376	(736,257)	5,248,508
Constituent engagement	5,809,353	—	—	5,809,353
<b>Total program services</b>	<b>85,088,721</b>	<b>5,726,813</b>	<b>(2,332,062)</b>	<b>88,483,472</b>
<b>Supporting services:</b>				
Board of governors and committees	1,253,124	48,890	—	1,302,014
Marketing	8,206,745	—	—	8,206,745
Sales and customer care	2,442,322	—	—	2,442,322
General administration	28,120,113	316,524	(187,909)	28,248,728
<b>Total supporting services</b>	<b>40,022,304</b>	<b>365,414</b>	<b>(187,909)</b>	<b>40,199,809</b>
<b>Total operating expenses</b>	<b>125,111,025</b>	<b>6,092,227</b>	<b>(2,519,971)</b>	<b>128,683,281</b>
<b>Deficit of operating revenue over expenses</b>	<b>(9,252,107)</b>	<b>(1,940,356)</b>	<b>—</b>	<b>(11,192,463)</b>
<b>Nonoperating activities:</b>				
Investment returns, net	1,642,569	360,626	—	2,003,195
Pension and post-retirement changes other than net periodic costs	(7,428,913)	—	—	(7,428,913)
Other components of net periodic costs	(80,464)	—	—	(80,464)
Decrease in net assets	(15,118,915)	(1,579,730)	—	(16,698,645)
Net assets at beginning of year, as restated	85,225,359	44,827,602	(100,000)	129,952,961
<b>Net assets at end of year</b>	<b>\$ 70,106,444</b>	<b>43,247,872</b>	<b>(100,000)</b>	<b>113,254,316</b>

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