Thermal Spray Society announces Hall of Fame recipients: Y.C. Lau, B. Marple and R. Miller

Dr. Yuk-chiu (Y.C.) Lau, Dr. Basil Marple, FASM and Dr. Robert Miller have been selected to become members of the 2020 Thermal Spray Hall of Fame by the ASM Thermal Spray Society Board of Directors.

Dr. Yuk-chiu (Y.C.) Lau

Dr. Yuk-chiu (Y.C.) Lau joined GE Global Research in 1990 and retired in 2017 as Technical Leader, Materials & Processes Eng., GE Power. Dr. Lau received his BS degree in Physics (1976) from the Chinese University of Hong Kong, Hong Kong and his Ph.D. degree in Electrical Engineering (1985) from the University of Buffalo, NY, U.S.A.

Dr. Lau is a pioneer and an expert of thermal spray technology (e.g., air and vacuum plasma spray, HVOF and cold spray) for the development of advanced coatings, e.g., thermal barrier coatings (TBCs), abradable coatings, environmental barrier coatings, etc. for land-based gas turbines and aircraft engines. He currently holds 42 U.S. Patents and was the recipients of several GE achievement awards, e.g., the 2000 Dushman Award for “Advanced TBC development”, and the 2004 Asian Pacific American Forum Research Excellence Award.

Dr. Lau is a member of ASM since 1991 and served as the Industrial Liaison to the ASM TSS Broad of Directors between 2012 and 2015. He has served on the JTST Editorial Committee since 2001 and is currently the Vice-chairman of the committee. He has served as a co-editor of the ITSC Proceedings and JTST Special issues since 2006 and was the guess editor of the 2017 JTST special issue on “Special Focus on Next Generation Coatings for Gas Turbines”. He also served on the organizing committee of the ASM 2013 Conf. on “Reliability, Durability and Performance Assessment of Thermal Sprayed Coatings”.

Award Citation: For pioneering work in the development of advanced thermal sprayed thermal barrier coatings that includes dense-vertically cracked TBCs and environmental barrier coatings.

Dr. Basil Marple, FASM

Dr. Basil Marple, FASM was a Senior Research Officer (now retired) with the National Research Council of Canada (NRC) where he was employed for more than 37 years. Dr. Marple received a B.Sc. in Chemistry from Dalhousie University, Canada in 1978 and a Ph.D. in Ceramic Science from Pennsylvania State University, State College, Pennsylvania in 1990.

After joining the NRC in 1975, his initial activities were in the area of bulk ceramics where his work focused on the shaping and engineering of ceramic materials by slip casting, compaction and, later, injection molding. His interest in surface modification and coatings developed during his Ph.D. studies (1986-89) when infiltration processing was employed to produce mullite-alumina surfaces on alumina components. He began working in the area of thermal spray in 1995. The ongoing focus of his research in the coatings field was on processing-microstructure-property relationships of cermet and ceramic coatings. A major theme of his studies centered on nanostructured materials and the effect and benefit of the presence of nanostructured phases/zones on the properties and performance of the deposited coatings.
He has published more than 100 academic papers, including 65 in peer-reviewed journals and more than 50 in conference proceedings, and he holds three patents. Several of his collaborative publications have received Best Paper Awards.

Dr. Marple served two 3-year terms (2006-12) on the Thermal Spray Society (TSS) Board of Directors. He was a member of the International Thermal Spray Conference (ITSC) Organizing Committee for several years, served on the TSS Nominating Committee and was Vice-Chair of the TSS Program Committee from 2006-2010. His involvement in the editorship of scientific publications included serving as co-editor of four ITSC Proceedings (2003, 2006, 2007 and 2009), for which he spearheaded the effort by the team of editors from 2006 to 2009. He was a guest editor for several special issues of the Journal of Thermal Spray Technology (JTST) and was named Lead Editor of the JTST in 2010, serving in that capacity until 2013. In 2010 he was the recipient of the TSS President’s Award. He was elected Fellow of the Society as a member of ASM’s 2010 Class of Fellows.

**Award Citation:** For significant scientific impact and mentoring in thermal spray R&D and for leadership in disseminating technical information to the thermal spray community.

Dr. Robert Miller was a Mechanical engineer V at Vantage Partners LLC (NASA GRC Contractor). He conducted research into aero thermal barrier coatings (TBCs) for the great majority of his 43 years at NASA in Cleveland, Ohio. When he started as a civil servant in 1978, TBCs were just beginning to be seriously considered for demanding applications in gas turbine engines -- interest that was largely ignited by then recent developments at NASA. Since that time, he has published a wide variety of primary references in what eventually became a very active field. General topics included early insights into failure mechanisms, life modeling, detailed stress modeling, and the role of phase distributions on coating performance. He also conducted early studies of environmental barrier coatings (EBCs) for ceramics, thick TBCs for diesel engines, TBCs having lower thermal conductivity with improved sintering resistance, and TBCs having improved erosion resistance. He developed various unique test rigs -- most notably laser rigs for affordable high heat flux testing, a high temperature burner/erosion/CMAS-deposition-capable rig, and a high heat flux natural gas/generated-oxygen rig. He also managed numerous contracts and grants with engine companies and universities.

From 1976-78, he was a Post-Doc at NASA working on high temperature corrosion-related research. He earned a Ph.D. in chemistry from Case Western Reserve University (CWRU) in 1976, where he conducted research in the area of high temperature chemical physics (reactive scattering). After retiring from civil service in 2015, he served as a part-time researcher at NASA until 2019.

He has authored or co-authored over 150 research papers, reports, and proceedings and 15 patents. His work has been extensively cited -- 15 papers have 100 or more citations in Google Scholar. These 15 have total citations approaching 4000; the top two papers have about 800 citations each.

**Award Citation:** For original and sustained contributions to the field of aero thermal barrier coatings that has stimulated and led this R&D into commercial realization.