

IN MEMORIAM

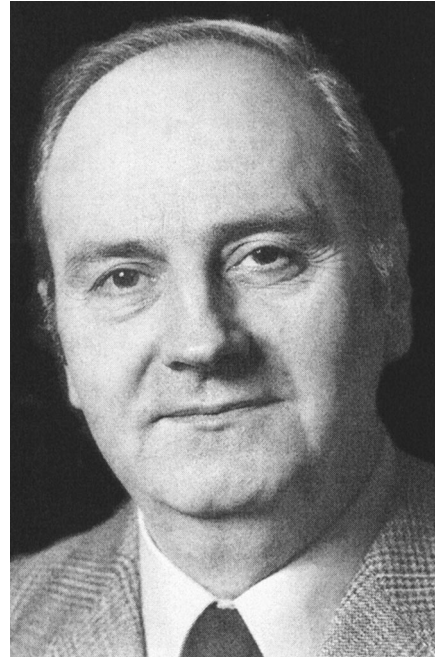
Professor Arthur H. Lefebvre (1923–2003)

Professor Arthur H. Lefebvre, an ASME Fellow and a member of IGTI's Combustion and Fuels technical committee over three decades, passed away on November 24, 2003 in Pebworth (Nr. Stratford-upon-Avon), England as a result of pancreatic cancer. He is survived by wife Sally, sons David and Paul, daughter Anne, and six grandchildren.

Professor Lefebvre made outstanding exemplary contributions over five decades in the areas of gas turbine combustion and combustor design. His pioneering work covered combustor aerodynamics, flame stabilization, turbulent flame propagation, ignition, fuel atomization, fuel injector design, droplet combustion, combustor heat transfer, gas turbine fuels, and emissions. He was an outstanding educator and industry consultant.

Dr. Lefebvre developed a " θ -parameter" correlation for gas turbine combustors that established the design and development methodology for modern gas turbine combustion systems. His combustor design was adopted for the Rolls-Royce RB 211 engine that powered Boeing 747, Airbus, and Lockheed 1011 aircraft. He patented the design of novel air-blast fuel injectors and afterburners for Rolls-Royce engines that replaced previous designs and became the most lucrative patents in the company's history. Professor Lefebvre is renowned for his ingeniously derived correlations for the prediction of droplet size from various kinds of fuel atomizers used in propulsion and power industry. These elegant and powerful correlations are widely used in the gas turbine industry, and in air pollution control and energy conservation fields.

Dr. Lefebvre co-authored over 160 archival publications, 13 patents and 3 books (*Gas Turbine Combustion*, *Gas Turbine Combustor Design Problems*, and *Atomization and Sprays*). His *Gas Turbine Combustion* is a classic book and widely read by practitioners in aircraft and industrial gas turbines. Professor Lefebvre received many world-class honors and awards such as: ASME Gas Turbine Award (1984), ASME R. Tom Sawyer Award (1984), AIAA Propellants and Combustion Award (inaugural recipient in 1990), Marshal Award from the Institute of Liquid Atomization and Spray Systems, ILASS, (1993), IGTI Scholar Award (1995), IGTI Aircraft Engine Technology Award (1996), and ASME George Westinghouse Gold Medal (2002). He received a Ph.D. (1952) and higher doctorate (1975) degrees from London University, and an honorary doctorate (1989) degree from Cranfield University, U.K. He was a Fellow of Royal Aeronautical Society and the Royal Academy of Engineering in the U.K.



Professor Lefebvre served as the head of School of Mechanical Engineering (1961–1976) at Cranfield University, U.K. and at Purdue University, U.S.A. (1976–1980) and Reilly Professor of Mechanical Engineering (1980–1993) at Purdue University. His short courses, primarily on gas turbine combustion, attracted students from all over the world. He was an inspiring mentor to a generation of students, a valued consultant to industry, and a dedicated member of ASME combustion and fuels community. He was approachable, kind, generous, helpful, and will be remembered for his great sense of humor, especially his after-dinner speeches at conferences. Above all, he had a colorful personality that left a lasting impression on those he befriended. His teaching will remain intact in the minds of numerous gas turbine combustion researchers and students. However, the world of gas turbine combustion has lost a pioneer and giant and he will be missed by all for his friendship, wit, and wisdom.

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