



Hulga, W. A.

WOLFGANG SCHMIDT

1942–2007

Elected in 2001

“For outstanding contributions to computational aerodynamics and air vehicle design and engineering, and for promoting international leadership and cooperation.”

BY EARLL MURMAN AND ANTONY JAMESON

DR. WOLFGANG SCHMIDT was elected a Foreign Associate of the National Academy of Engineering in 2001 for “outstanding contributions to computational aerodynamics and air vehicle design and engineering, and for promoting international leadership and cooperation.” He collapsed in his wife’s arms on November 2, 2007, while dancing after dinner at a favorite Austrian hotel. His death was officially confirmed shortly after midnight. Wolfgang’s contributions to aerospace engineering, his talent for bringing people together, and his ability to bring out the best in everyone will have a lasting impact on the aerospace profession.

Born on February 8, 1942, in Duisburg, Germany, Wolfgang lived with his mother in the small village of Pfalzfeld until his father returned from captivity during World War II. He attended school in Pfalzfeld and the gymnasium in Duisburg before enrolling at the Technical University in Aachen. An expert swimmer and water polo player, he also enjoyed hiking and climbing in the mountains.

Upon receiving his Diploma of Aeronautics and Astronautics in 1966, he was employed as an aerodynamics engineer at Dornier GmbH in Friedrichshafen. Mr. Max, the head of the aerodynamic and flight dynamic department, asked his assistant Fräulein Weißenberger to meet Wolfgang at the main gate as

he reported to Dornier, and two weeks later he and Ingrid Weißenberger had their first dance. They were married on May 29, 1971, in Immenstaad at the Hersberg Monastery on the shore of the Bodensee.

Wolfgang continued working at Dornier and its successors until his retirement, and Friedrichshafen was the couple's home for all but 10 years during which they lived in Munich. Wolfgang and Ingrid had two daughters, Maren and Anika, and two grandchildren. While Wolfgang pursued his interests in aerospace engineering, Ingrid pursued her artistic talents as a painter. Together they enjoyed time at their mountain cottage in Austria.

For the first four years at Dornier, Wolfgang was involved in the aeronautical design of wings and control surfaces for vertical take-off and landing (VTOL) and supersonic aircraft and missiles. Simultaneously, he pursued his doctoral studies in aeronautical engineering at the Technical University of Aachen, where he received his doctorate in 1972. As head of the Fluid Mechanics Group from 1970 to 1974, he also worked on the design of gas centrifuges for uranium enrichment, which led to a patent for gas bearings.

By 1974, Wolfgang had transitioned to the development and application of computational fluid dynamics (CFD) methods for compressible flow. In recognition of his management and leadership abilities, Dornier promoted him to chief of the Computational Fluid Dynamics Department. Starting with linear-panel and then transonic small-disturbance-potential methods, Wolfgang was a major contributor to the rapid development of compressible CFD methods for full-potential, Euler, and then Navier-Stokes equations for three-dimensional aircraft configurations.

During this fertile period of his career, Wolfgang established international partnerships with leading CFD innovators, putting Dornier in the forefront of CFD development and application. Collaboration with Antony Jameson at Princeton University and Eli Turkel of Tel Aviv University led to the classic AIAA Paper 81-1269, "Numerical Solutions of the Euler Equations by Finite Volume Methods Using Runge-Kutta Time-Stepping

Schemes," which was presented at the 14th Fluid and Plasma Dynamics Conference in Palo Alto, California, in 1981. This paper became the "knee in the curve" of CFD development for aircraft design, and the field was forever transformed. Dr. Paul Rubbert, Wolfgang's counterpart at Boeing Commercial Aircraft, described his colleague's work: "During those formative years for CFD, I found that Wolfgang was always at the technology leading edge as the challenges changed from linear potential flow to boundary layer methods to nonlinear potential flow, Euler Equations, and Navier-Stokes. Time and time again I found that he had turned a corner and established a new direction at the same time as I and my group did likewise. It was almost 'spooky.' In my eyes Wolfgang was clearly and continuously ahead of any other CFD research organization in Europe."

Wolfgang's accomplishments and abilities did not go unnoticed, and in 1982 he was promoted to director of Dornier's Aerodynamics Department and then in 1987 to vice president for the Dornier 328 Airplane Program, a turboprop regional aircraft with a supercritical wing. In this position, his responsibilities included marketing and sales, design and development, and manufacturing.

In 1990, with the merger of Dornier and MBB, he was elevated to director, Air Vehicle Engineering Unit, Military Aircraft Division of MBB/DASA in Munich, where his responsibilities included all configuration engineering for the F-104, Tornado, Eurofighter, JPATS Ranger 2000, Airbus components, and the Saenger and HERMES space-transport concepts. His links to the international community multiplied as he worked with his counterparts in the United States, United Kingdom, France, Indonesia, and Russia.

Following additional consolidation in the German aircraft industry, Wolfgang was appointed vice president of technology, strategy, and innovation for Daimler Benz AG in Stuttgart in 1995. From then until his retirement from Daimler Chrysler AG in 2004, he concentrated on corporate technical strategy and built important partnerships with industries and universities in Europe, the United States, Russia, Israel, and Japan.

After retirement, Wolfgang enjoyed an affiliation with the Aerospace Department at the Technical University of Munich, where he was deputy head of the aeronautical section. With great enthusiasm, he taught two courses, supervised several master's students, and led outreach activities to research foundations and other universities. Wolfgang was also a consultant to aerospace companies and a contributor to professional societies until his untimely death.

Wolfgang's international reach went well beyond the confines of his employers. He was active in major professional societies and coordinating bodies. As an NAE foreign associate, he participated regularly in U.S. meetings and arranged a very successful European regional meeting of foreign associates. Perhaps his most important contributions were to the International Council of Aeronautical Sciences (ICAS). In 1995, he became a member of the Programme Committee, and from 1998 to 2000 he was committee chair; from 2000 to 2002 he was ICAS president, and from 2002 to 2004, he was ICAS past president. Wolfgang was also active in the American Institute of Aeronautics and Astronautics (AIAA), for which he served on numerous technical and other committees, particularly as executive chair of the AIAA/ICAS International Air and Space Symposium in 2003, which marked the 100th anniversary of powered flight. He was elected a Fellow and then Honorary Fellow of the AIAA and a Fellow of the Royal Aeronautical Society. He also was a member of many international coordinating groups, including AGARD (1985–1991), DGLR (2000–2008), SAE World Aviation Congress, and the European GARTEUR (1978–1987).

Wolfgang authored or co-authored more than 100 technical publications, was awarded five patents, taught four AIAA professional study seminars, gave numerous talks, and frequently chaired sessions at technical meetings. Thanks largely to his leadership and technical contributions, Dornier's Aerodynamics Group achieved world-class status.

Beyond his professional accomplishments, Wolfgang was a colleague and a connecting link between people, from students to executives. His infectious enthusiasm, perceptiveness, and gracious behavior were magnetic. Everyone looked forward to seeing him and spending time with him, whether it involved a technical exchange, a strategy session, or a social activity. He will be sorely missed, but not forgotten by all of his international colleagues.