Contents lists available at ScienceDirect

International Journal of Heat and Fluid Flow

journal homepage: www.elsevier.com/locate/ijhff

Tribute to Thomas B. Gatski

It was with deep sadness that we learned of the passing of our colleague and friend, Thomas B. Gatski, on September 3, 2020, at the early age of 72. Tom was an expert in turbulence modelling with a 28-year career at NASA Langley, and he remained professionally active in many capacities long after his retirement from this public service role in 2005. He remained deeply creative in his research field while developing further his broad commitment to fluid mechanics, exemplified especially through his editorial contributions to this journal over more than two decades.

He had first joined the *IJHFF* Editorial Advisory Board in the 1990s. Then, following the decision to give greater emphasis to papers from the aerodynamics sector, Tom, with his exemplary track record as an EAB member, was invited to join the editorial team as Associate Editor in 2004. Thereafter, he became an Editor-in-Chief from the start of 2006 with especial responsibility for papers from the Americas. He discharged all his editorial responsibilities with a unique blend of thoroughness, sensitivity and good humour. Tom took his role of EiC very seriously and engendered a supportive approach with the whole AE team. He provided sage advice to all when dealing with often conflicting points of view expressed by reviewers.

After receiving his PhD from Penn State University in 1976 under the supervision of John Lumley, Tom began his career at NASA in 1977. In 1987 he won NASA's Floyd Thompson Fellowship to work at the University of Cambridge for a year, which included a post as Visiting Scholar at Wolfson College, Cambridge. After this, he quickly rose to prominence as a leader in turbulence model development. Over the next two decades, he contributed many important ideas to the field, including his pioneering work with Charles Speziale ("On explicit algebraic stress models for complex turbulent flows," DOI: https://doi.org/10.1017/S0022112093002034), which led to the development of several forms of explicit algebraic Reynolds stress turbulence models (EASMs) that are still widely used today. At NASA, the EASM was applied to many flows of interest to the agency, particularly high-lift applications. Tom also contributed to the well-known Speziale-Sarkar-Gatski (SSG) model ("Modelling the pressure-strain correlation of turbulence: an invariant dynamical systems approach," DOI: https://doi.org/10.1017/S0022112091000101), which is incorporated in many CFD codes used throughout the world.

While not a university academic, he taught numerous short courses and special programs in Asia, South America and Europe. He mentored many people (both at NASA and subsequently), supervising several doctoral students; he also served on a number of doctoral and *habilitation* assessment committees. Tom also served his profession in other important ways, helping to organize symposia and workshops, including the 4th International Symposium on Turbulence and Shear Flow Phenomena in 2005. Besides his major work as editor of this Journal, he had previously been associate editor, then editor, of *Theoretical & Computational Fluid Dynamics* from 1991 to 2005.

After retiring from NASA, Tom spent eight years in Poitiers, France, through a CNRS position in the PPrime Institute. During this stay he developed close collaborations while working on supersonic boundary layers, turbulent viscoelastic flows and, of course, turbulence modelling. In particular, he contributed to the development of a hybrid RANS/LES approach based on temporal filtering. This period, without administrative duties, allowed him to concentrate on writing two books. One, titled "Compressibility, Turbulence and High-Speed Flow," now in its 2nd edition, has provided an opportunity to combine his theoretical and modelling approaches with the experimental background more specific to the Poitiers' group.

https://doi.org/10.1016/j.ijheatfluidflow.2020.108747

Back row (L-R): Peter Jordan, Eric Lamballais, Yves Gervais, Rodolphe Perrin, Philippe Traoré, Jean Paul Bonnet, Véronique Fortuné, Joel Delville (deceased), Guillaume Lehnasch. Front row (L-R): Laurent E. Brizzi, Jacques Borée, Thomas B. Gatski, Rosann Gatski

With a disarming smile and down-to-earth candour, Tom approached both his life and work with gusto. He loved to travel and enjoyed nothing more than participating in conferences, where he could engage with colleagues over dinner in deep technical discussions accompanied by a glass of fine beer or wine. He believed that "a day without learning is a day wasted" and certainly lived up to that motto. Even in retirement, he continued to expand his horizons, learning about different cultures, music, food and drink from around the world (including unearthing recipes to make at home). In Poitiers, he tested every restaurant of note, achieving a connoisseurship that he freely shared with locals seeking his advice. During his years in France, he also learned to understand and circumvent the pitfalls of French culture and the logic of the administration, with a subtle mix of irritation and humour. Indeed, he used to say that he could write a book full of accumulated anecdotes about his life in France – a half-serious goal that regrettably remained unfulfilled!

Tom with daughter, Megan, during their climb of the Sydney harbour bridge

Tom with Rosann on the great wall of China

In the USA he was very active in community service, both with the United Way and the Rotary Club. He was deeply proud of his wife Rosann and daughter Megan and revelled in their activities together, whether travelling to a new destination, attending a baseball game, or relaxing at home. We express our deepest condolences to Tom's family for their loss. Tom was an amazing person in so many ways, and his legacy lives on.

Christopher Rumsey, NASA Langley

Rémi Manceau, CNRS-Université de Pau

Jean-Paul Bonnet, CNRS-Université de Poitiers (and associate editor, IJHFF)

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