

IHS 50th Anniversary Conference and Celebration

Update for Week of 1 November 2020

1. No changes in program or schedule
2. Sessions this week:

Tuesday, 3 November

9 a.m. Zurich, 3 a.m. Washington, 12 midnight Seattle/LA, 7 p.m. Sydney

Speaker: Thomas Wuhrmann — Supramar AG History

Speaker: Garry Fry — The Concorde of the Gulf' Owing Rodriguez PT 20 Manu Wai

Thursday, 5 November 4 p.m. Seattle/LA, 7 p.m. Washington

/ Friday, 6 November 11 a.m. Sydney, 9 a.m. Tokyo

Speaker: Tom Speer — America's Cup Sailing Hydrofoil Developments

Speaker: Konstantin Matveev — Recent Hydrofoil Studies at Washington State University

These sessions will be conducted on Zoom. Use this link for all sessions:

<https://us02web.zoom.us/j/3157231248?pwd=TExBMnIrVE9MRG5PU29KVHkrYlRnZz09>

If it does not open automatically, use

Meeting ID: 315 723 1248

Password: r09YST.)

Abstracts & Bios week of 1 Nov.

Speaker: Thomas Wuhrmann

Position: Director / Cameraman Documentary Filmmaker

Affiliation: Tele1, Wuhrmann Enterprises

Presentation Title: History of Supramar AG

Abstract:

Supramar was a hydrofoil design company in Switzerland founded in 1952. The founders were engineers who had already worked on hydrofoil boats in Germany during WW2. Among them were Baron Hanns von Schertel, Karl Büller and Eugen Schatté. In May 1953 the world's first passenger hydrofoil, "Freccia D'Oro", was put into operation on Lake Maggiore. This led to further development, such as the PT 20 and PT 50. Supramar became the market leader for hydrofoils in the western hemisphere and in Asia for about 25 years.

Supramar never built boats itself but only gave licenses to shipyards. The first licensee was Rodriguez in Messina, later Hitachi Zosen in Japan and Westermoen in Norway. Westermoen built the three PT 150s, which at the time were the largest hydrofoils in the world.

In the 1970s, a legal dispute began with Rodriquez, which ultimately led to the fall of Supramar. Later on, Supramar worked on projects for high speed sailing boats and surface effect ships (for example the "Seabus Hydaer") but was never able to build on earlier successes.

Bio:

Thomas Wuhrmann is a Director, Video Editor and Cameraman at the local television station Tele1 in Central Switzerland and has also run his own business "Wuhrmann Enterprises" since 1992. With this company, he is specialized for film and video digitizing and he produces documentaries. The latest was "Fliegende Schiffe (flying ships), a documentary about Supramar AG (2017).

Thomas has been collecting all kind of hydrofoil material since the late 1980's and is also owner and archivist of the official Supramar archive (given in 2017 by Harry Trevisani and Volker Jost, the last board members and owners of Supramar). His father was the manager and owner of the Waser Shipyard, which built the first commercial hydrofoil in the World.

The history of Supramar can be seen in a 25 minute documentary Thomas has prepared for the occasion of the 50th Anniversary celebration, available on the IHS YouTube channel (<https://www.youtube.com/watch?v=dQo78rDFrP0&t=205s>), only a portion of which will be run during the live session with Thomas to maximise time for discussion with him.

Speaker: Garry Fry

Position: Master, Sydney Ferries

Affiliation: Sydney Ferries

Presentation Title: The Concorde of the Gulf' Owing Rodriquez PT 20 Manu Wai

Abstract:

The Supramar-designed PT 20 surface-piercing passenger hydrofoil "Manu Wai" was built by Rodriquez in Italy in 1964 and originally delivered to Kerridge-Odeon Tourist Services and Waiheke Shipping Company for operation between Auckland and Waiheke Island in New Zealand. It spent much of its career in New Zealand before a major refurbishment project was undertaken between 1989 and 1990 to convert it to a VIP configuration.

Unfortunately, in 1993 or 1994 on a ferry trip for its new owners, it ran aground and its bow and stern foils and propeller shafting were damaged. It was deemed a write-off from an insurance perspective. At that time, Garry Fry, a Master on the Sydney Harbour ferry service was considering starting up a private hydrofoil charter operation on the harbour. His attention turned from acquiring a smaller Supramar PT 4, 'Meteor III', also in New Zealand, to acquiring the larger capacity 'Manu Wai'. The presentation is Garry's first hand account of the acquisition, in partnership, of 'Manu Wai' in 1995 and its subsequent shipping to Australia, repair and refurbishment, a period of charter operation which was ultimately unsuccessful, and the current status of what is considered to be the worlds last intact PT 20 hydrofoil. The PT 20, of which a large number were built by several licencees of Supramar around the world, was instrumental in the development of the fast ferry industry from the middle of the last century.

Video footage of Manu Wai can be found on YouTube via Garry's posts. A portion of such a video (<https://www.youtube.com/watch?v=759A774qf68>) will be shown during his presentation.

Bio:

Garry Fry is a Master with Sydney Ferries, most recently commanding the Freshwater class ferries, though at various times he has commanded all vessel types in the current fleet with the exception of the RiverCats and HarbourCats. He operated the last scheduled Sydney Ferries JetCat service with Blue Fin on 31 December 2008. He commenced his career with the Urban Transit Authority in 1981 as a deckhand on the Sydney hydrofoils. He retains a passion for hydrofoils to the extent that in 1995 he purchased ex-New Zealand PT 20 hydrofoil "Manu Wai" in partnership and oversaw its repair for commercial use around Sydney Harbour.

Speaker: Tom Speer

Position: Retired Flight Test Engineer, Aerodynamicist and Hydrodynamicist

Affiliation: Formerly design team member and consultant to Oracle Team USA

Presentation Title: Aero-Hydrodynamic Design and Racing of AC-72 Class at 34th America's Cup

Abstract:

Tom's presentation gives an overview of the history of the America's Cup and then discusses the overall performance of high-speed sailing craft with an emphasis on their aero- and hydrodynamic design. The focus then turns to the specific design aspects of the AC-72 class of America's Cup yachts which competed in the 34th America's Cup in San Francisco in 2013. Tom recounts the Oracle Team USA experience in the lead-up to and during the match racing of the 34th America's Cup against Team New Zealand.

It would be valuable for the audience to view this presentation in advance on the IHS YouTube channel at <https://www.youtube.com/watch?v=qCyzPwmImf8>. It is about 70 minutes long and will not all be repeated during the Zoom session, in order to allocate as much time as possible to a question and answer session, complemented where appropriate with slides from the presentation.

Bio:

Tom Speer designed his first hydrofoil in high school and did more in college, but had to put hydrofoils aside to pursue a career first.

He graduated from Iowa State University in Aerospace Engineering in 1975 and was commissioned into the US Air Force. In a succession of assignments he learned to conduct wind tunnel tests and create simulations of aircraft flight control systems; graduated from the USAF Test Pilot School's Flight Test Engineer Course; completed an M.S. in Aeronautical Engineering; and worked in research and flight test engineering on several advanced USAF aircraft developments. On the side, while at Edwards AFB in the Mohave Desert, he took up

landsailing and with friends built an experimental land yacht with a rigid wingsail, experience which proved very useful later.

After retiring from the Air Force in 1996, Tom worked as a flight controls engineer for Boeing on a succession of studies for manned and unmanned aircraft and finally as the lead engineer for designing the control laws of the KC-767 aerial refueling boom control system. At Boeing he rekindled his personal interest in hydrofoils and worked on a successor to Dave Keiper's trimaran *Williwaw*, the world's first cruising hydrofoil sailboat. This led to his designing the H105 hydrofoil section used widely by Fastacraft and in the hydrofoils of Moth sailboats.

While at Boeing he was engaged by the BMW Oracle Racing Design Team as a consultant on their yacht for the 33rd America's Cup Match, a 90 ft long by 90 ft wide trimaran. Tom designed the cross-sections for the mast and for a rigid wingsail as well, to improve the craft's light wind performance. His earlier landsailing made Tom the only one with prior experience designing or sailing a rigid wingsail. That wingsail was the largest single wing ever built, longer than a Boeing 747 wing tip-to-tip. It proved to be fast when in 2010 *USA 17* defeated *Alinghi 5* in Valencia, Spain to bring the America's Cup back to the US.

After that, Tom retired from Boeing to work for Oracle Racing full time on the 34th America's Cup, where he again worked on the wingsail design for the AC72 catamarans. In one of the great come-back stories in sport, Oracle Team USA successfully defended the America's Cup in San Francisco in 2013.

For his third America's Cup campaign, Tom assisted Hal Youngren in the design of the hydrofoils for the AC50 catamarans that were raced in Bermuda.

Tom is largely retired but still does some consulting on hydrofoil projects, including a hybrid-electric craft.

Speaker: Konstantin Matveev

Position: Professor

Affiliation: School of Mechanical and Materials Engineering, Washington State University, Pullman, WA

Presentation Title: Recent Hydrofoil Studies at Washington State University

Abstract:

The presentation provides an overview of several hydrofoil projects recently conducted by the research group on advanced marine vehicles at Washington State University. The first project is on air ventilation of surface-piercing hydrofoils and means for mitigating this phenomenon. Validation studies of the computational approach for simulation of air-ventilated hydrofoils, including hysteresis in the ventilation occurrence, were accomplished using experimental data from well-controlled experiments. Application of small fences on the hydrofoil surface was shown to suppress air ventilation in high-lift regimes. The second project is on modeling flexible composite hydrofoils using coupled fluid and solid solvers. Dependence of hydrodynamic and structural characteristics of hydrofoils on the fiber orientation was investigated. Dynamic simulations of flexible hydrofoils in waves were

carried out. The last project concerns a development of small-scale autonomous hydrofoil boats. Hardware setups, experimental runs, and development of algorithms for autonomous tracking of moving targets on water are discussed.

Bio:

Konstantin Matveev grew up in Gorky, Russia in the family of designers of advanced marine vehicles, including hydrofoils. Konstantin obtained BS/MS degrees in Applied Physics from Moscow Institute of Physics and Technology and then a PhD in Mechanical Engineering from Caltech. Dr. Matveev carried out post-doctoral research at Los Alamos National Laboratory and worked for the marine engineering firm Art Anderson Associates in Bremerton, WA. Currently, he is a professor in the School of Mechanical and Materials Engineering at Washington State University. His main research interests include advanced marine vehicles, computational marine hydrodynamics, fluid-structure interactions, dynamics, autonomy, and renewable energy systems. He carries out reduced-order modeling and detailed numerical simulations, builds and tests small-scale prototype boats, and consults with industry. He co-authored a technical handbook on Small Waterplane Area ships. Dr. Matveev's research work has been supported by the National Science Foundation, Department of Defense, Department of Energy, state agencies, and commercial companies.