

















# NuTTS 2023

25th Numerical Towing Tank Symposium  
15 – 17 October 2023. Ericeira, Portugal

## Programme, v10.0

### Sponsors

			
 GOLD Sponsor	 GOLD Sponsor	 GOLD Sponsor	 GOLD Sponsor
			
 GOLD Sponsor	 GOLD Sponsor	 SILVER Sponsor	 SILVER Sponsor
 THE ROYAL INSTITUTION OF NAVAL ARCHITECTS		 Ericeira Business Factory	
Media Sponsor	Institutional Partner	Institutional Partner	

## Sunday, 15<sup>th</sup> of October – Afternoon

Start time	End time	Paper code	Paper title	Presenter	Institution
11:00	12:00	Registration/Welcoming			
12:30	13:15	Lunch			
<b>13h15 - Opening Session</b>					
Mr. Pedro Carmo Silva (Tourism, Coast and Sea Councilman of Mafra City Hall) Dr. Guilherme Belezza Vaz (CEO blueOASIS) Dr. Volker Bertram (NuTTS Main Organizer)					
<b>Session 1 – Chairman: Guilherme Vaz</b>					
13:30	13:50	Renewables - P2	Prediction of integral and local aerodynamic loads on wind turbine blades using high-fidelity CFD	Vladimir Krasilnikov	Sintef Ocean
13:50	14:10	Renewables - P18	Uncertainty quantification for model-scale wind turbines	Martim Andrade	IST
14:10	14:30	Renewables - P34	CFD validation and analysis of aerodynamic loads acting on the rotor of a floating wind turbine subject to forced motions	Lucia Sileo	Sintef Ocean
14:30	14:50	Renewables - P50	Numerical analysis of the influence of the floater geometry on the dynamics of a TLP type floating wind turbine	Pawel Dymarski	Gdansk Tech
14:50	15:00	Break			
<b>Session 2 – Chairman: Volker Bertram</b>					
15:00	15:20	Alt propulsion - P46	Actuator line for wind propulsion simulations	Jarle Vinje Kramer	NTNU
15:20	15:40	Alt propulsion - P44	Atmospheric boundary layer in wind propulsion and CFD	Chiara Wielgosz	RISE
15:40	16:00	Alt propulsion - P30	FSI analyses of a high-performance solar boat's composite T-hydrofoil	Tomas Carreira	IST
16:00	16:20	Alt propulsion - P52	Pitching stability analysis of a displacement hull with cetacean-inspired propulsion	Nikolaos Lagopoulos	Dolprop
16:20	16:40	Alt propulsion - P8	Calculation of Flettner rotor forces using lifting line and CFD methods	Anders Ostman	Sintef Ocean
16:40	17:00	Propulsion - P63	Influence of gate rudder system (GRS) rudder angle(s) on propulsive efficiency	Cagatay Koksal	University of Strathclyde
17:00	17:20	Coffee Break			
<b>Session 3 – Chairman: Luis Eça</b>					
17:20	17:40	CFD methods - P9	On the balance between robustness and accuracy in finite-volume codes	Auke van der Ploeg	MARIN
17:40	18:00	CFD methods - P12	An efficient non-hydrostatic numerical wave tank using $\sigma$ -grids	Hans Bihs	NTNU
18:00	18:20	CFD methods - P13	Numerical applications of wave-structure interaction problems using a direct forcing immersed boundary method in REEF3D::CFD	Ahmet Soydan	NTNU

18:20	18:40	CFD methods - P14	REEF3D::PTF - a fixed grid finite differences potential flow solver for three dimensional fluid structure interaction	Fabian Knoblauch	NTNU
18:40	19:00	CFD methods - P62	Computation of ship manoeuvring in irregular waves with CFD using data-driven methods	Benedetto Di Paolo	Engys
20:00		Dinner			

## Monday, 16<sup>th</sup> of October – Morning

Start time	End time	Paper code	Paper title	Presenter	Institution
8:40	9:00	Welcoming Participants			
<b>Session 4 – Chairman: Bettar el Moctar</b>					
9:00	9:20	Cavitation - P40	A multi-scale Euler-Lagrange method to predict cavitation erosion	Andreas Peters	Universität Duisburg-Essen
9:20	9:40	Cavitation - P33	On the accuracy of predicting cavitation impact loads on the nozzle surface of marine thrusters	Themistoklis Melissaris	Wartsila Netherlands
9:40	10:00	Cavitation - P29	Cavitation prediction using RANS? Unleashing adaptive grid refinement to reach the mesh convergence	Benoit Mallol	Cadence
10:00	10:20	Cavitation - P55	The numerical study and solution verification of unsteady cavitation of a three-dimensional NACA hydrofoil with tubercles	Nicolaos Charambous	UCL
10:20	10:40	Cavitation - P60	The unresolved issues and phenomena in numerical modelling of air cavity closure using a scale-resolving method	Maarten Kerkvliet	MARIN
10:40	11:00	Coffee Break			
<b>Session 5 – Chairman: Benoit Mallol</b>					
11:00	11:20	Propulsion - P3	SOBC-1 - an open science validation dataset for conventional and wind-assisted ship propulsion	Vladimir Krasilnikov	Sintef Ocean
11:20	11:40	Propulsion - P7	Comparison of the propulsive efficiency of the ULCS with standard single screw propulsion with twin screw propulsion and podded contra-rotating propulsion	Hanna Pruszko	Gdańsk University of Technology
11:40	12:00	Propulsion - P11	Modelling of laminar-to-turbulent flow transition on a marine propeller using a RANS solver	João Baltazar	IST
12:00	12:20	Propulsion - P15	Optimisation algorithms for special propellers	Yannick Eberhard	Promarin
12:20	12:40	Propulsion - P16	Comparison of propeller models in CFD for propulsion and maneuvering tests	Dejan Radosavljevic	SIEMENS
12:40	13:00	Propulsion - P49	URANS-based simulation of ship propulsion in seaways	Ivan Sulovsky	Riteh
13:00	14:00	Lunch			

## Monday, 16<sup>th</sup> of October – Afternoon

Start time	End time	Paper code	Paper title	Presenter	Institution
<b>Session 6 – Chairman: Vladimir Krasilnikov</b>					
14:00	14:20	Propulsion - P26	Scaling effects on a propeller in uniform inflow condition	Qais Khraisat	Chalmers
14:20	14:40	Propulsion - P31	Crossflow transition modelling for a marine propeller at model scale	Rui Lopes	Chalmers
14:40	15:00	Propulsion - P41	Influence of shallow water on rudder induced forces	Jakob Rzeszutko	Universität Duisburg-Essen
15:00	15:20	Tools - P4	JoRes Joint Research Project - the largest global community developing benchmark for ship scale CFD	Dmytri Ponkratov	RINA
15:20	16:00	Transport to Mafra			
16:00	20:00	Visit of the palace of Mafra, Carillon Concert, Cocktail			
20:00	20:30	Transport back to Ericeira			

## Tuesday, 17<sup>th</sup> of October – Morning

Start time	End time	Paper code	Paper title	Presenter	Institution
8:30	8:40	Welcoming Participants			
<b>Session 7 – Chairman: Rickard Bensow</b>					
8:40	9:00	Resistance - P6	Using CFD for a ship drag reduction study by air lubrication	Sasha Zverkhovskiy	DAMEN
9:00	9:20	Resistance - P24	Turbulence modelling effects on captive manoeuvring forces in shallow waters	Lahbib Zentari	BAW
9:20	9:40	Resistance - P37	CFD simulation of wakes compared to SPIV measurements	Merrick Stanley	QinetiQ
9:40	10:00	Resistance - P43	Parametric design and optimization of planing hull; a comparison of optimization methods	Stefan Harries	Friendship
10:00	10:20	Resistance - P45	A practical approach to bulbous bow retrofitting for enhanced energy efficiency	Matija Vasilev	Ocean Pro Marine
10:20	10:40	Resistance - P57	Hull roughness importance in full-scale ESD's performance prediction	Alex Shiri	RISE
10:40	11:00	Coffee Break			
<b>Session 8 – Chairman: Auke van der Ploeg</b>					
11:00	11:20	Misc - P35	Strategies for post processing of large CFD datasets, automation, and analysis of collection of files	Antoine Ligier	Tecplot
11:20	11:40	Misc - P64	Access to European Supercomputing – more than a tool, an opportunity	Susana Caetano	RNCA
11:40	12:00	Misc - P51	CFD simulations of iceberg calving	Alban Leroyer	ECN
12:00	12:20	Misc - P36	Archiving local high-fidelity simulation data using incremental model order reduction strategies	Niklas Kühl	HSVA
12:40	14:00	Lunch			

## Tuesday, 17<sup>th</sup> of October - Afternoon

Start time	End time	Paper code	Paper title	Presenter	Institution
<b>Session 9 - Chairman: Alban Leroyer</b>					
14:00	14:20	Acoustics - P20	PINNS for underwater noise propagation	Dmytro Dehtiarov	blueOASIS
14:20	14:40	Acoustics - P23	Investigation of the effect of compressibility on acoustic radiation in low-Mach-number flows using CFD	Asiye Karakus	University of Southampton
14:40	15:00	Sea trials - P1	Database structure for CFD, model test and sea trial results and correlation possibilities based on that	Peter Horn	HSVA
15:00	15:20	Sea trials - P5	Statistical analysis between CFD simulations and sea trial acceptance tests	Scott Terry	DAMEN
15:20	15:40	Break			
<b>Session 10 - Chairman: Hans Bihs</b>					
15:40	16:00	Waves - P21	Increasing the efficiency of wave-structure interaction simulation by coupling 2D and 3D computations using forcing method ( <i>online</i> )	Milovan Peric	Universität Duisburg-Essen
16:00	16:20	Waves - P38	Simulation of a wave impact using ReFRESCO pressure-based compressible-incompressible flow solver	João Muralha	IST
16:20	16:40	Waves - P56	Investigating aerodynamic behavior of a frigate in waves using CFD	Tahsin Tezdogan	University of Southampton
16:40	17:00	Waves - P58	The wave-induced drift floating plastic spheres and plastic discs	Andriarimina Daniel Rakotonirina	The Ocean Cleanup
17:00	17:20	Coffee Break			
<b>Session 11 - Chairman: Guilherme Vaz</b>					
17:20	17:40	Misc - P61	Free running manoeuvres of DTC in deep and shallow water - A detailed study using RANSE calculation	Marcus Doescher	BAW
17:40	18:00	Misc - P47	Hydroelastic effects on energy saving device	Andro Bakica	University of Split
18:00	18:20	Propulsion - P48	Development of standardized series of counter-rotating propellers with special interest in hydrofoil navigation	Jorge López	Vicus DT
18:20	18:40	Propulsion - P59	Comprehensive investigation of the form design of the gate rudder for propulsive performance using design of experiment method	Ahmet Gurkan	University of Strathclyde
18:40	19:00	Concluding Remarks			