

<b>Time</b>	<b>Sunday, July 07, 2024</b>
<b>16:30-18:30</b>	<b>Registration</b> <b>La Cité des Congrès, Nantes</b>
<b>18:00-19:30</b>	<b>Welcoming Reception</b> <b>Michel Visonneau, Thomas Fu</b> <b>La Cité des congrès, Nantes</b>

<b>Time</b>	<b>Monday, July 08, 2024</b>	
<b>07:45-08:30</b>	<b>Registration</b>	
<b>08:30-09:00</b>	<b>Welcoming Address: Dr. Michel Visonneau (Ecole Centrale de Nantes, France)</b> <b>Welcoming Address: TBD</b> <b>Welcoming Address: Dr. Thomas Fu (Office of Naval Research, USA)</b>	
<b>09:00-09:30</b>	<b>Keynote Address: Dr. Martin Irvine (USA)</b> <b>Title: TBD</b> <b>Chair: Dr. Michel Visonneau (Ecole Centrale de Nantes, France)</b> <b>Room: Salle 300</b>	
<b>09:30-10:30</b>	<b>Invited Lecture: Prof. Paul Brandner (Australia)</b> <b>Dynamics of Sheet and Cloud Cavitation</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	
<b>10:30-11:00</b>	<b>Morning Coffee/Tea</b>	
<b>11:00-12:30</b>	<b>Session 1A</b> <b>Ocean Environment</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 1B</b> <b>Ship Wave and Wake Hydrodynamics</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
11:00-11:30	#97 - Framework for Studying the Ocean's Heartbeat D.G. Dommermuth ( <i>Breaking Wave Analysis, USA</i> )	#30 - Influence of interface-sharpening on the computation of the ship's wave field in CFD simulations R. Perić, J. Berndt, and M. Abdel-Maksoud ( <i>Institute for Fluid Dynamics and Ship Theory, Hamburg University of Technology (TUHH), Hamburg, Germany</i> )
11:30-12:00	#110 - Investigating Internal Gravity Waves and Turbulent Mixing in Geophysical Flows: A Validation Study of the MSLPM Framework J. Gilbert, E. Higgins, D. Wall, J. Pitt, and E. Paterson ( <i>Virginia Tech, Blacksburg, VA, USA</i> )	#56 - Ship wake scaling: a comparison between RANS CFD predictions and more traditional empirical methods A.R. Starke <sup>1</sup> , S. Shingo <sup>2</sup> , D. Villa <sup>3</sup> , H. Yoon <sup>4</sup> , R. Broglia <sup>5</sup> , K.J. Maki <sup>6</sup> , K. E. Marlantes <sup>6</sup> , P. Horn <sup>7</sup> , Y. Jiang <sup>8</sup> , F. Zhao <sup>9</sup> , J. Banks <sup>10</sup> , and B. Winden <sup>11</sup> ( <sup>1</sup> <i>Maritime Research Institute Netherlands (MARIN), The Netherlands</i> , <sup>2</sup> <i>Shipbuilding Research Centre of Japan (SRCJ), Japan</i> , <sup>3</sup> <i>University of Genova (UniGe), Italy</i> , <sup>4</sup> <i>IIHR – Hydroscience &amp;</i>

		<p><i>Engineering, Iowa, USA, <sup>5</sup>Consiglio Nazionale delle Ricerche (CNR), Italy, <sup>6</sup>University of Michigan (UM), Michigan, USA, <sup>7</sup>Hamburgische Schiffbau-Versuchsanstalt GmbH (HSVA), Germany, <sup>8</sup>Dalian University of Technology (DUT), China, <sup>9</sup>China Ship Scientific Research Centre (CSSRC), China, <sup>10</sup>University of Southampton (UoS), UK, <sup>11</sup>SHORTCUT CFD LLC, Bryan, Texas, USA; Texas A&amp;M University, Department of Ocean Engineering, College Station Texas, USA)</i></p>
12:00-12:30	<p>#123 - Numerical simulations of the flow in the Behm Canal and comparisons to measured data D. T. Conroy<sup>1</sup>, S. Merrifield<sup>2</sup>, S. Schroeder<sup>3</sup>, D. Wyatt<sup>1</sup>, and E. Terrill<sup>2</sup> (<sup>1</sup>Ocean and Atmospheric Sciences Branch, Leidos, Inc., USA, <sup>2</sup>Scripps Institution of Oceanography, La Jolla, CA, USA, <sup>3</sup>Naval Surface Warfare Center, Carderock Division, USA)</p>	<p>#100 - Modeling for the Far Field Bubbly Wake of a Ship D. Cassidy<sup>1</sup>, P. Carrica<sup>2</sup>, and J. Ezequiel Martin<sup>2</sup> (<sup>1</sup>US Navy NSWC Panama City Division, USA, <sup>2</sup>IIHR-Engineering &amp; Hydroscience, University of Iowa, USA)</p>
<b>12:30-14:00</b>	<b>Lunch</b>	
<b>14:00-16:00</b>	<p><b>Session 2A</b> <b>Fundamentals of Fluid Dynamics in the Naval Context (1/3)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b></p>	<p><b>Session 2B</b> <b>Turbulent Boundary Layer Flow – Smooth and Rough Surfaces (1/2)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b></p>
14:00-14:30	<p>#4 - Hydrodynamics of Semi-Submersible Hulls with Variable Height-Width Ratio in Deep and Shallow Water K.I. Matveev (Washington State University, USA)</p>	<p>#70 - Direct measurement of eddy viscosity operator for turbulent channel flow over superhydrophobic surfaces K. Liu and A. Mani (Stanford University, USA)</p>
14:30-15:00	<p>#12 - 4DPTV Measurements and DES of the Turbulence Structure and Vortex Vortex Interaction for 5415 Sonar Dome Vortice F. Stern<sup>1</sup>, Y. Sanada<sup>1</sup>, Z. Starman<sup>1</sup>, S. Bhushan<sup>2</sup>, and C. Milano<sup>1</sup> (<sup>1</sup>IIHR, University of Iowa, USA, <sup>2</sup>Mississippi State University, USA)</p>	<p>#72 - Similarity Between Rough- and Smooth-Wall Boundary Layers Under Strong Adverse Pressure Gradients Conditions R. J. Volino, V. Vishwanathan, and M. P. Schultz (United States Naval Academy, USA)</p>
15:00-15:30	<p>#18 - Experimental Investigation of the Transition by a Turbulence Stimulator in a Flat Plate Boundary Layer J. Park<sup>1,2</sup>, and S. H. Rhee<sup>1,3</sup> (<sup>1</sup>Seoul National University, <sup>2</sup>Currently, Changwon National University, <sup>3</sup>Research Institute of Marine Systems Engineering, South Korea)</p>	<p>#73 - Experimental Study of Flow-Deformation Interaction in a Turbulent Boundary Layer over a Compliant Surface Y. Lu and J. Katz (The Johns Hopkins University, USA)</p>

15:30-16:00	<p>#21 - Quantifying Entrainment and Degassing of Bubbles by Free-Surface Turbulence for Ship Wake Applications D.B. Gaylo<sup>1</sup>, K. Hendrickson<sup>2,1</sup>, and D.K.P. Yue<sup>1</sup> (<sup>1</sup>Massachusetts Institute of Technology, USA, <sup>2</sup>University of North Carolina at Chapel Hill, USA)</p>	<p>#75 - Time Resolved Holographic PIV in the Inner Part of a Rough-Wall Turbulent Boundary Layer D. Sharma, S. Zimmerman, and J. Katz (The Johns Hopkins University, USA)</p>
<b>16:00-16:30</b>	<b>Afternoon Coffee/Tea</b>	
<b>16:30-18:30</b>	<p><b>Session 3A</b> <b>Cavitation and Multi-phase Flows (1/4)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b></p>	<p><b>Session 3B</b> <b>Nonlinear Wave-induced Motions and Loads (1/2)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b></p>
16:30-17:00	<p>#6 - Modeling Dissolved Air Bubble Production in the context of Ship Bubbly Wakes P. M. Carrica<sup>1,2</sup>, J. Granata<sup>1</sup>, T. Hollingsworth<sup>1</sup>, M. Bappy<sup>2</sup>, J. Li<sup>2</sup>, L. Freire<sup>3</sup>, G. Buscaglia<sup>3</sup>, A. Vela-Martin<sup>4</sup> (<sup>1</sup>General Dynamics Electric Boat, USA, <sup>2</sup>IIHR-Hydroscience and Engineering, The University of Iowa, USA, <sup>3</sup>Universidade de São Paulo, Brazil, <sup>4</sup>Universidad Carlos III, Spain)</p>	<p>#10 - Uncertainty Quantification for Ship Motions and Loads with Reduced-Order Models V. Belenky<sup>1</sup>, K. Weems<sup>1</sup>, V. Pipiras<sup>2</sup>, and S. Aram<sup>1</sup> (<sup>1</sup>David Taylor Model Basin / NSWCCD, USA <sup>2</sup>University of North Carolina, Chapel Hill, USA)</p>
17:00-17:30	<p>#35 - Development of a Refined Planing Calculation Method with Account of Data from Small-Scale Experiments V. V. Serebryakov (Institute of Hydromechanics, National Academy of Sciences, Kyiv, Ukraine)</p>	<p>#34 - Hydro-Elastic Analysis of Ships using a High-Order Finite Difference Method on Overlapping Grids Baoshun Zhou, Mostafa Amini-Afshar, Yanlin Shao, and Harry B. Bingham (Dept. of Civil &amp; Mechanical Engineering, Technical University of Denmark, 2800 Lyngby, DK)</p>
17:30-18:00	<p>#38 - A stochastic representation of sub-grid bubble dynamics towards modeling cavitation inception A. Radhakrishnan and S. H. Bryngelson (Georgia Institute of Technology, USA)</p>	<p>#47 - Statistical Reduced-Order Modeling of Peaks of Vertical Bending Moment in Irregular Waves M. Kim<sup>1</sup>, V. Pipiras<sup>1</sup> and T. Sapsis<sup>2</sup> (<sup>1</sup>University of North Carolina Chapel Hill, USA <sup>2</sup>Massachusetts Institute of Technology, USA)</p>
18:00-18:30	<p>#45 - The influence of boundary-layer thickness on incipient and developed cavitation in tip-leakage flow P. S. Russell, K. Takahashi, L. Barbaca, J. A. Venning, B. W. Pearce &amp; P. A. Brandner (Australian Maritime College, University of Tasmania, Australia)</p>	<p>#64 - Effect of slamming events on the statistics of the vertical bending moment T.P. Sapsis<sup>1</sup> and V. Pipiras<sup>2</sup> (<sup>1</sup>Department of Mechanical Engineering, Massachusetts Institute of Technology, USA, <sup>2</sup>Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, USA)</p>
<b>18:30-19:30</b>	<p><b>Tech Talk: TBD</b> <b>Title: TBD</b></p>	

	<b>Chair: TBD</b> <b>Room: Salle 300</b>
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Time	Tuesday, July 09, 2024	
08:00-08:30	<b>Registration</b>	
08:30-09:30	<b>Invited Lecture: Prof. Charles Meneveau (USA)</b> <b>New physics-based wall modeling concepts for Large Eddy Simulations of turbulence</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	
09:30-10:00	<b>Morning Coffee/Tea</b>	
10:00-12:30	<b>Session 4A</b> <b>Cavitation and Multi-phase Flows (2/4)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 4B</b> <b>Fundamentals of Fluid Dynamics in the Naval Context (2/3)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
10:00-10:30	#5 - Homogeneous Shear Turbulence and Application to Cavitation Inception P. M. Carrica <sup>1,2</sup> , J. Granata <sup>1</sup> , T. Hollingsworth <sup>1</sup> , M. Bappy <sup>2</sup> , J. Li <sup>2</sup> , L. Freire <sup>3</sup> , G. Buscaglia <sup>3</sup> , A. Vela-Martin <sup>4</sup> <i>(<sup>1</sup>General Dynamics Electric Boat, USA, <sup>2</sup>IIHR-Hydroscience and Engineering, The University of Iowa, USA, <sup>3</sup>Universidade de São Paulo, Brazil, <sup>4</sup>Universidad Carlos III, Spain)</i>	#57 - A Mathematical Solution to the Reynolds Number Scaling Problem: Predicting Full-Scale Six Degree-of-Freedom Maneuvers from Model-Scale Maneuvering Data W. Faller <sup>1</sup> , L. Jiang <sup>2</sup> , H. Shan <sup>2</sup> , B. Earley <sup>2</sup> , D. Hess <sup>2</sup> , K. Gemechu <sup>2</sup> , and E. Singleton <sup>3</sup> <i>(<sup>1</sup>Applied Simulation Technologies, <sup>2</sup>Naval Surface Warfare Center, Carderock Division, Code 8600, USA, <sup>3</sup>NAVSEA, USA)</i>
10:30-11:00	#7 - Breaking Bubbles Across Multiple Timescales in Turbulence S. Zhong, Y. Qi, S. Tan, N. Corbitt, C. Urbanik, A. K. R. Salibindla, and R. Ni <i>(Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD 21218, USA)</i>	(66) Performing and Documenting Flow Simulations and Experiments of Roll-Decay Tests and the Comparison of their Results J. Berndt <sup>1</sup> , R. Perić <sup>1</sup> , M. Abdel-Maksoud <sup>1</sup> , S. Park <sup>2</sup> , K. Rosenblum <sup>2</sup> , Y. Sanada <sup>2</sup> , F. Stern <sup>2</sup> , R. Tonelli <sup>3</sup> , S. Toxopeus <sup>3</sup> , and T. Hamstad <sup>4</sup> <i>(<sup>1</sup>TUHH, Hamburg University of Technology, Hamburg, Germany, <sup>2</sup>IIHR, University of Iowa, Iowa, Unites States of America, <sup>3</sup>MARIN, Maritime Research Institute, Wageningen, The Netherlands, <sup>4</sup>SINTEF, Stiftelsen for industriell og teknisk forskning Norway)</i>
11:00-11:30	#15 - Natural And Ventilated Supercavitating Projectile with The Employment of Cavitator Chang Xu and Boo Cheong Khoo <i>(Department of Mechanical Engineering, National University of Singapore, Singapore)</i>	#74 - Large Eddy Simulation of Two-Fluid Flows in Ship Wakes K. Hendrickson <sup>2,1</sup> , D.B. Gaylo <sup>1</sup> , and D.K.P. Yue <sup>1</sup> <i>(<sup>1</sup>Massachusetts Institute of Technology, USA, <sup>2</sup>University of North Carolina at Chapel Hill, USA)</i>

11:30-12:00	#20 -Direct Numerical Simulations of air entrainment by submerged turbulence A. Calado and E. Balaras ( <i>The George Washington University, Washington D.C., USA</i> )	#81 - Evaluation of Boundary Conditions for Realistic Ship Airwakes Using a GPU-Accelerated Lattice-Boltzmann Solver Compared to High-Fidelity RANS-LES and Experiments E. Kurban <sup>1</sup> , S. L. Toxopeus <sup>2</sup> , S. G. Ashok <sup>1</sup> , and J. Rauleder <sup>1</sup> ( <sup>1</sup> <i>Georgia Institute of Technology, USA</i> , <sup>2</sup> <i>Maritime Research Institute Netherlands (MARIN), Wageningen, The Netherlands</i> )
12:00-12:30	(26) Nuclei content effects on cavitation inception noise predictions using viscous CFD and Lagrangian bubble tracking A. K. Lidtke ( <i>Maritime Research Institute Netherlands (MARIN), Haagsteeg 2, 6708 PM Wageningen, The Netherlands</i> )	#139 - A Verification and Validation Study of RANS Based Roughness Models at Model and Full Scale Reynolds Numbers L. Eça <sup>1</sup> , M. Kerkvliet <sup>2</sup> , A.R. Starke <sup>2</sup> , and S.L. Toxopeus <sup>2</sup> ( <sup>1</sup> <i>Instituto Superior Tecnico (IST, ULisboa), Portugal</i> , <sup>2</sup> <i>Maritime Research Institute Netherlands (MARIN), The Netherlands</i> )
<b>12:30-14:00</b>	<b>Lunch</b>	
<b>14:00-16:00</b>	<b>Session 5A</b> <b>Fluid-Structure Interaction for Ships and Propellers</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 5B</b> <b>Turbulent Boundary Layer Flow – Smooth and Rough Surfaces (2/2)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
14:00-14:30	#78 - Exploration of Aspect Ratio and Anisotropy Effects on an Elastic Flat Plate Slamming on Still Water R. Pellegrini <sup>1</sup> , M. Diez <sup>1</sup> , Z. Wang <sup>2</sup> , F. Stern <sup>2</sup> , S.E. Lee <sup>3</sup> , A. Wang <sup>3</sup> , K.T. Kiger <sup>3</sup> , and J.H. Duncan <sup>3</sup> ( <sup>1</sup> <i>CNR-INM, Natl. Research Council-Institute of Marine Engineering, Rome, Italy</i> , <sup>2</sup> <i>IIHR-Hydrosience &amp; Engineering, The University of Iowa, Iowa City, IA, USA</i> , <sup>3</sup> <i>University of Maryland, College Park, Maryland, USA</i> )	#118 - Towards a new roughness parametrization through the Effective Distribution function F. Bruno <sup>1</sup> , M. De Marchis <sup>1</sup> , and S. Leonardi <sup>2</sup> ( <sup>1</sup> <i>Department of Architecture and Engineering, University of Kore di Enna, Italy</i> , <sup>2</sup> <i>Department of Mechanical Engineering, University of Texas at Dallas, Richardson, TX, USA</i> )
14:30-15:00	#96 - The Natural Response of Uniform and Nonuniform Plates in Air and Partially Submerged in Water E. Fishman <sup>1</sup> , S. Lee <sup>1</sup> , R. Pellegrini <sup>2</sup> , A. Wang <sup>1,3</sup> , K. T. Kiger <sup>1</sup> , M. Yu <sup>1</sup> , J. H. Duncan <sup>1</sup> , F. Stern <sup>4</sup> , and M. Diez <sup>2</sup> ( <sup>1</sup> <i>Department of Mechanical Engineering, University of Maryland, College Park</i> , <sup>2</sup> <i>Institute of Marine Engineering, National Research Council, Italy</i> , <sup>3</sup> <i>Department of Civil,</i>	#141 - Velocimetry development for near-wall measurements for HIPRO campaign C. Fort, S.W. Williams, H.D. Solomon, M.J. Yamakaitis, Y. Sawalhi, S.M. Khalil, S.M. Portal, and P.M. Bardet ( <i>The George Washington University, USA</i> )

	<i>Environmental and Ocean Engineering, Stevens Institute of Technology, 4Department of Mechanical Engineering, University of Iowa)</i>	
15:00-15:30	#101 - A Co-Analysis Framework for the Visualization of Synchronous Fluid-Structure Modes in Experimental FSI Y. Kulkarni <sup>1,2</sup> , D. Stansberry <sup>1,2</sup> , I. Di Napoli <sup>3</sup> , J. Buchholz <sup>1,2</sup> , and C. Harwood <sup>1,2</sup> <i>(<sup>1</sup>Department of Mechanical Engineering, The University of Iowa, <sup>2</sup>IIHR - Hydroscience and Engineering, The University of Iowa, <sup>3</sup>Iowa Technology Institute, The University of Iowa, USA, <sup>3</sup>Naval Surface Warfare Center – Carderock Division, USA)</i>	#147 - Drag Characterization of Biofilm-like Surfaces in a Turbulent Channel Flow E.G. Callison, M. Elsouht, S. Ramesh, S. Ceccio, and H. Ganesh <i>(University of Michigan, Ann Arbor, USA)</i>
15:30-16:00	#108 - Hydrodynamic interactions of vessel motions and resonant oscillations within multiple moonpools Suraj Garad, Anirban Bhattacharyya, Ranadev Datta <i>(Indian Institute of Technology Kharagpur, India)</i>	
<b>16:00-16:30</b>	<b>Afternoon Coffee/Tea</b>	
<b>16:30-18:30</b>	<b>Session 6A</b> <b>Hydrodynamics of Propulsors and Lifting Surfaces (1/3)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 6B</b> <b>Undersea Vehicle Hydrodynamics (1/2)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
16:30-17:00	#25 - Design, Simulation and Testing of a Rotor for Tip Gap Flow Research Thad Michael, Jin-Keun Choi, Michelle Otero <i>(NSWC Carderock Division, USA)</i>	#29 - Experimental Investigation of the Seakeeping Behavior of a Surfaced Underwater Vehicle M. Courdier <sup>1,2</sup> , Z. Leong <sup>2</sup> , J. Duffy <sup>2</sup> , and J. Binns <sup>3,2</sup> <i>(<sup>1</sup>MARIN, the Netherlands, <sup>2</sup>Australian Maritime College, University of Tasmania, Australia, <sup>3</sup>Defence Science and Technology Group, Australia)</i>
17:00-17:30	#55 - Optimization-Based Numerical and Experimental Investigation of Decelerating Ducted Pumpjet for a High Speed Underwater Vehicle Efecan Oğuz Demir <sup>1,2</sup> , Enes Şahin <sup>1,2</sup> , Mustafa Şengül <sup>1,2</sup> , Batuhan Özdemir <sup>1,2</sup> <i>(<sup>1</sup>Roketsan Missiles Inc./Turkey, <sup>2</sup>Istanbul Technical University/Turkey)</i>	#76 - Six-Degree-of-Freedom Motion Emulation for Data-Driven Modeling of Underwater Vehicles Juliana Danesi Ruiz <sup>1,2</sup> , Michael Swafford <sup>1,2</sup> , Austin Krebill <sup>1</sup> , Rachel Vitali <sup>1</sup> , and Casey Harwood <sup>1,2</sup> <i>(<sup>1</sup>Department of Mechanical Engineering, The University of Iowa, <sup>2</sup>IIHR - Hydroscience and Engineering, The University of Iowa)</i>
17:30-18:00	#67 - Propeller characteristics in oblique flow at model scale and full scale	#98 - Reynolds number and angle of attack effects on the flow over a 6:1

	R. Lopes <sup>1</sup> , A. Eslamdoost <sup>1</sup> , R. Johansson <sup>2</sup> , S. RoyChoudhury <sup>2</sup> , and R. E. Bensow <sup>1</sup> ( <sup>1</sup> Chalmers University of Technology, Gothenburg, Sweden, <sup>2</sup> Kongsberg Hydrodynamic Research Centre, Kristinehamn, Sweden)	prolate spheroid M. Plasseraud and K. Mahesh (Department of Naval Architecture & Marine Engineering, University of Michigan, USA)
18:00-18:30	#85 - Surface roughness effects on hydrodynamics and far-field noise propagation for pitching hydrofoils Melike Kurt <sup>1</sup> , Rodrigo Vilumbrales Garcia <sup>2</sup> , Gabriel Weymouth <sup>3</sup> and Bharath Ganapathisuramani <sup>1</sup> ( <sup>1</sup> Faculty of Engineering and Physical Sciences, University of Southampton, Southampton, UK, <sup>2</sup> Naval Architecture and Marine Engineering, University of Michigan, USA, <sup>3</sup> Faculty of Mechanical, Maritime and Materials Engineering, TU Delft, NL)	#113 - Second Moment Closure Modeling of Stratified Wake Flows Using Machine Learning Based Models for Anisotropic Dissipation and Pressure Diffusion N. Jain, J. Li, V. Wadhvani, X. Yang, and R. Kunz (Penn State University, Mechanical Engineering, University Park, PA, USA)
18:30-19:30	<b>Tech Talk: TBD</b> <b>Title: TBD</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	

Time	Wednesday, July 10, 2024	
07:30-09:00	Bus Travel To The Puy du Fou Historic Theme Park	
09:00-09:30	Morning Coffee/Tea	
09:30-10:30	Weinblum Memorial Lecture: Prof. Yonghwan Kim (Korea) Prediction of Ship Hydrodynamic Performance in Waves Chair: TBD Room: TBD	
10:30-11:00	Morning Coffee/Tea	
11:00-13:00	Session 7A Data Science in Hydrodynamics Chair: TBD Room: TBD	Session 7B Cavitation and Multi-phase Flows (3/4) Chair: TBD Room: TBD
11:00-11:30	#8 - Data-Driven Extreme Response Estimation Samuel J. Edwards and Michael D. Levine (Naval Surface Warfare Center, Carderock Division, USA)	#49 - Experimental Study on Supercavitation via Horizontally Air Launched Projectiles Tao Zhuang, Zhen Wei Teo, Yongdong Cui, Chang Xu, Ningyu Liu, Wee Beng Tay, Chien Ming Jonathan Tay, Siou Chye Chew and Boo Cheong Khoo (National University of Singapore, Republic of Singapore)

11:30-12:00	#13 - A clustering extension to Gene Expression Programming for unsupervised turbulence modeling of complex-geometry flows L. Campoli, R. D. Sandberg (Dept. of Mechanical Engineering, University of Melbourne, Australia)	#51 - Experimental Study on Fluid-Structure Interaction between Cavitation Bubble and Elastic Metal Foils H. J. Sagar <sup>1,2</sup> and O. el Moctar <sup>2</sup> ( <sup>1</sup> Department of Hydro and Renewable Energy, Indian Institute of Technology, Roorkee, India, <sup>2</sup> Institute of Ship Technology, Ocean Engineering and Transport Systems, University of Duisburg-Essen, Germany)
12:00-12:30	#65 - Data Assimilation-based Simultaneous Phase-Resolved Ocean Wave and Ship Motion Forecast G. Wang and Y. Pan (Department of Naval Architecture and Marine Engineering, University of Michigan, Ann Arbor, MI USA)	#53 - Numerical study of the hydrodynamic forces acting on a surface-piercing hydrofoil in natural mud M. S. Sotelo <sup>1</sup> , D. Boucetta <sup>1</sup> , W. Van Hoydonck <sup>2</sup> , and G. Delefortrie <sup>1</sup> ( <sup>1</sup> Maritime Technology Division, Ghent University, Ghent, Belgium, <sup>2</sup> Flanders Hydraulics, Antwerp, Belgium)
12:30-13:00	#91 - Design-Space Dimensionality Reduction in Fluid-Structure Interaction Optimization via Parametric Model Embedding M. Diez <sup>1</sup> , R. Pellegrini <sup>1</sup> , A. Serani <sup>1</sup> , and F. Stern <sup>2</sup> ( <sup>1</sup> CNR-INM, Natl. Research Council-Institute of Marine Engineering, Rome, Italy, <sup>2</sup> The University of Iowa, Iowa City, IA, USA)	#54 - Numerical Prediction of Cavitation Erosion Using a Multi-Scale Euler-Lagrange Method A. Peters, U. Lantermann, and Ould el Moctar (University of Duisburg-Essen, Germany)
<b>13:00-14:00</b>	<b>Lunch</b>	
<b>14:00-19:00</b>	<b>Visit Le Puy du Fou With Shows</b>	
<b>19:00-20:30</b>	<b>Bus Travel To Nantes</b>	

Time	Thursday, July 11, 2024	
<b>08:00-08:30</b>	<b>Registration</b>	
<b>08:30-09:30</b>	<b>Invited Lecture: G. Weymouth (The Netherlands) Title: TBD Chair: TBD Room: Salle 300</b>	
<b>09:30-10:00</b>	<b>Morning Coffee/Tea</b>	
<b>10:00-12:30</b>	<b>Session 8A Hydrodynamics of Propulsors and Lifting Surfaces (2/3) Chair: TBD Room: Salle 300</b>	<b>Session 8B Hydrodynamics of High Speed or Multi-hull Ships Chair: TBD Room: Salle 150</b>
<b>10:00-10:30</b>	#88 - Large Eddy Simulation of the Tip Leakage Flow in a Ducted Propulsor T. Leasca <sup>1,2</sup> , T. Kroll <sup>3</sup> , and K. Mahesh <sup>1</sup>	#3 - On some unique hydrodynamic issues of a fast battery driven catamaran Apostolos Papanikolaou <sup>1</sup> and Yan Xing-



	<i>(<sup>1</sup>University of Michigan, USA, <sup>2</sup>Naval Surface Warfare Center, Carderock Division, USA, <sup>3</sup>University of Minnesota, USA)</i>	Kaeding <sup>2</sup> <i>(<sup>1</sup>National Technical University of Athens, Greece, <sup>2</sup>HSVA Hamburg Ship Model Basin, Germany)</i>
10:30-11:00	#95 - Time-Resolved Flow and Pressure Measurements in the Tip Region of a Refractive Index-Matched Ducted Marine Propeller Using Tomographic PIV Ayush Saraswat, Chintan Panigrahi, and Joseph Katz <i>(Johns Hopkins University, Baltimore, MD, USA)</i>	#27 - Numerical Simulation and Automated Optimization of Stepped Hulls M.P. Wheeler <sup>1</sup> and K.I. Matveev <sup>2</sup> <i>(<sup>1</sup>Siemens Digital Industry Software, USA, <sup>2</sup>Washington State University, USA)</i>
11:00-11:30	#120 - Developing Methods for the Decomposition of Appendage Resistance in Real-Time Dynamic Simulations L. Chernyshev <sup>1</sup> , N. Kabaliuk <sup>1</sup> , M. Jermy <sup>1</sup> , S. Corkery <sup>2</sup> , and D. Bernasconi <sup>2</sup> <i>(<sup>1</sup>Dept. of Mechanical Engineering, University of Canterbury, New Zealand, <sup>2</sup>Emirates Team New Zealand, New Zealand)</i>	#31 - Development of a mathematical model for the performance prediction of stepped hulls T. Tezdogan <sup>1</sup> and A. Gray-Stephens <sup>2</sup> <i>(<sup>1</sup>Department of Civil, Maritime and Environmental Engineering, University of Southampton, U.K., <sup>2</sup>Department of Naval Architecture, Ocean and Marine Engineering, University of Strathclyde, U.K.)</i>
11:30-12:00	#124 - Suboff Propeller installation effects in steady drift conditions M. Felli <sup>1</sup> , S. Meloni <sup>2</sup> , and F. Passacantilli <sup>1</sup> <i>(<sup>1</sup>National Research Council of Italy, Institute of Marine Engineering, CNR INM, Italy, <sup>2</sup>Università degli Studi della Tuscia, Italy)</i>	#33 - Simulating forced drift and yaw motions of planing hulls using a numerical 2D+t method P. Marleaux <sup>1</sup> , H. Simonis <sup>2</sup> , and M. Abdel-Maksoud <sup>1</sup> <i>(<sup>1</sup>Institute for Fluid Dynamics and Ship Theory, Hamburg University of Technology, Germany, <sup>2</sup>Lurssen Shipyard, Germany)</i>
12:00-12:30	#131 - Blade, tip and hub vortices topology on a rudder in the propeller wake M. Miozzi <sup>1</sup> , G. Dubbioso <sup>1</sup> , R. Muscari <sup>1</sup> , and M. Costantini <sup>2</sup> <i>(<sup>1</sup>CNR-INM, Institute of Marine Engineering, Rome, Italy, <sup>2</sup>DLR, German Aerospace Center, Gottingen, Germany)</i>	#99 - Development and Experimental Hydrodynamic investigation of a Free Running model for Gernal Prismatic Planing Hull (GPPH) in Calm Waters X. Wang, O. Sallam, and M. Furth <i>(Texas A&amp;M University, USA)</i>
<b>12:30-14:00</b>	<b>Lunch</b>	
<b>14:00-16:00</b>	<b>Session 9A</b> <b>Nonlinear Wave-induced Motions and Loads (1/2)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 9B</b> <b>Cavitation and Multi-phase Flows (4/4)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
14:00-14:30	#36 - Reduced-Order Model as a Predictor of Extreme Motions and Loads K. Weems, V. Belenky, A.M. Reed, and S. Edwards <i>(David Taylor Model Basin / NSWCCD, USA)</i>	#79 - Development of a Microfluidic Nanostrain Sensor to Study Solid-Air Interfacial Bubble Dynamics Under Hydroacoustic Perturbations in Environmental Water S. K. S. Cheng, M. Jalali-Mousavi, K.

		Lopez, and J. Sheng, (Texas A&M University-Corpus Christi, USA)
14:30-15:00	#77 - Assessing Broaching-to Probability through Lagrangian Coherence I. Kontolefas and K. J. Spyrou (National Technical University of Athens, Greece)	#115 - Towards numerical modelling of cavitating flows A. Madabhushi <sup>1</sup> , F. L. Brandao <sup>1</sup> , K. Alame <sup>1</sup> , and K. Mahesh <sup>1,2</sup> ( <sup>1</sup> Aerospace Engineering and Mechanics, University of Minnesota, USA, <sup>2</sup> Naval Architecture and Marine Engineering, University of Michigan, USA)
15:00-15:30	#114 - Evaluation of the added resistance of a containership in a directional irregular sea state through computations in regular and irregular waves M. Tierno <sup>1</sup> , T. Descamps <sup>1,2</sup> , G. Ducrozet <sup>1</sup> , and B. Bouscasse <sup>1</sup> ( <sup>1</sup> Nantes Université, Ecole Centrale Nantes, CNRS, LHEEA, UMR 6598, F-44000 Nantes, France, <sup>2</sup> Bureau Veritas Solutions Marine et Offshore, F-44000 Nantes, France)	#144 - X-ray measurements of ventilated cavities in the wake of a 2-D bluff body and an axisymmetric cavitator U. U. Gawandalkar <sup>1</sup> , N. A. Lucido <sup>2</sup> , P. Jain <sup>2</sup> , C. Poelma <sup>1</sup> , S. L. Ceccio <sup>2,3</sup> , and H. Ganesh <sup>2</sup> ( <sup>1</sup> Delft University of Technology, The Netherlands, <sup>2</sup> Department of Naval Architecture and Marine Engineering, University Of Michigan, Ann Arbor, MI, USA, <sup>3</sup> Department of Mechanical Engineering, University Of Michigan, Ann Arbor, MI, USA)
15:30-16:00		#149 - Pressure Evolution and Inception of a Pair of Interacting Vortices D. Knister <sup>1</sup> , H. Ganesh <sup>2</sup> , and S. L. Ceccio <sup>2</sup> ( <sup>1</sup> LaVision Inc., USA, <sup>2</sup> University of Michigan, USA)
<b>16:00-16:30</b>	<b>Afternoon Coffee/Tea</b>	
<b>16:30-17:30</b>	<b>Session 10A</b> <b>Anti-Fouling and Drag Reduction Technologies</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 10B</b> <b>Undersea Vehicle Hydrodynamics (2/2)</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
16:30-17:00	#11 - High Reynolds number turbulent drag reduction via spanwise wall oscillations tuned to various turbulence scales R. Deshpande <sup>1</sup> , A.J. Smits <sup>2</sup> , and I. Marusic <sup>1</sup> ( <sup>1</sup> Department of Mechanical Engineering, University of Melbourne, Parkville, VIC 3010, Australia, <sup>2</sup> Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ 08544, USA)	#130 - Hydrodynamic Load and Wake Characteristics of a Generic Submarine in Linearly Stratified Fluid with High Reynolds Numbers Liushuai Cao, Gang Gao, Enkai Guo, and Decheng Wan (Computational Marine Hydrodynamics Lab (CMHL), School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University, Shanghai, China)
17:00-17:30	#50 - Mechanisms of Air Layer Drag Reduction over Engineered Surfaces O. Orun, R. Blanco, T. Furry, and S.A.	#142 - Improved RANS Turbulence Modeling for Vortex-Dominated Flows around Undersea Vehicles Involving

	Makiharju (University of California, Berkeley, USA)	Transition S. E. Kim and B. J. Rhee (Naval Surface Warfare Center, Carderock Division, USA)
<b>19:00-23 :30</b>	<b>Symposium dinner at Château de la Poterie</b>	

Time	Friday, July 12, 2024	
<b>08:00-08:30</b>	<b>Registration</b>	
<b>08:30-09:30</b>	<b>Invited Lecture: TBD</b> <b>Title: TBD</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	
<b>09:30-10:00</b>	<b>Morning Coffee/Tea</b>	
<b>10:00-12:30</b>	<b>Session 11A</b> <b>Fundamentals of Fluid Dynamics in the Naval Context (3/3)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 11B</b> <b>Hydrodynamics of Maneuvering and Control</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
10:00-10:30	#116 - Turbulence Statistics in Laboratory Free Surface Turbulence E.I. Florou, and P.M. Bardet (The George Washington University, Washington, DC, USA)	#92 - ONR Tumblehome Maneuvering in Extreme Irregular Waves B.G. Knight <sup>1</sup> , Y. Mohammadi <sup>1</sup> , K.M. Silva <sup>2</sup> , E. Heilshorn <sup>3</sup> and K.J. Maki <sup>3</sup> ( <sup>1</sup> Department of Ocean Engineering, University of Rhode Island, USA, <sup>2</sup> Naval Surface Warfare Center Carderock Division, USA, <sup>3</sup> Department of Naval Architecture and Marine Engineering, University of Michigan, USA)
10:30-11:00	#134 - Experimental Study on Ship Air-Wake with Ship Motion K. Zheng <sup>1</sup> , H. Setiawan <sup>1,2</sup> , Kevin <sup>1</sup> , J. H. Lee <sup>1</sup> , and J. P. Monty <sup>1</sup> ( <sup>1</sup> Dep. Mechanical Engineering, The University of Melbourne, Victoria 3010, Australia, <sup>2</sup> Ocean Engineering Program, Institut Teknologi Bandung, Jawa Barat 40132, Indonesia)	#107 - Planing craft manoeuvrability - Validation of a RANS based prediction method M. Volkmann <sup>1,2</sup> , B. Blum-Thomas <sup>1</sup> , and A. Cura Hochbaum <sup>1</sup> ( <sup>1</sup> Technische Universität Berlin, Germany <sup>2</sup> Potsdam Model Basin, Germany)
11:00-11:30	#82 - Measuring Instantaneous Wall Stress Distributions in Turbulent Wall Flows with Lamb Wave in Soft Miniaturized Nanostrain Sensor M. Jalali, A. Talioua, S.K.S. Cheng,, K. Lopez, and J. Sheng (LAEBI Laboratory, Texas A&M University Corpus Christi, USA)	#112 - Validation of a RANS based method to predict ship manoeuvring in waves J. Radix, X. Gao, A. Cura Hochbaum (Technische Universität Berlin, Germany)
11:30-12:00	#152 - Prolate spheroid at a moderate angle of attack in a stratified environment S. Nidhan, S. Jain, J. L. Ortiz-Tarin and S. Sarkar	#126 - New developments on an autonomous free running model for understanding the maneuvering performances of submarine

	(University of California at San Diego, La Jolla, USA)	M. Darquier, C. Bouynot, M. Mélice, S. Duhamel, R. Luquet, O. Choussy, and D. Fréchou (DGA Hydrodynamics, France)
12:00-12:30	#128 - Volumetric Turbulent Boundary Layer Measurements over a Generic Submarine Bare Hull P. Manovski <sup>1,2</sup> , D. Loveday <sup>1</sup> , C.M. de Silva <sup>3</sup> , M. Giacobello <sup>1</sup> , N. Hutchins <sup>2</sup> , and I. Marusic <sup>2</sup> ( <sup>1</sup> Defence Science and Technology Group, Australia, <sup>2</sup> Dept. of Mechanical Engineering, The University of Melbourne, Australia, <sup>3</sup> Schl. Of Mechanical and Manufacturing Engineering, University of New South Wales, Australia)	#151 - Reynolds Effects on Submarine Stern Plane Efficiency and Stall using Wall-Resolved CFD C. Willemsen <sup>1</sup> , S. Toxopeus <sup>1</sup> , F. Quadvlieg <sup>1</sup> , and M. Bettle <sup>2</sup> ( <sup>1</sup> MARIN, The Netherlands, <sup>2</sup> DRDC, Canada)
<b>12:30-14:00</b>	<b>Lunch</b>	
<b>14:00-15:30</b>	<b>Session 12A</b> <b>Hydrodynamics of Propulsors and Lifting surfaces (3/3)</b> <b>Chair: TBD</b> <b>Room: Salle 300</b>	<b>Session 12B</b> <b>Reduced Order Modeling (ROMs) for Naval Hydrodynamics</b> <b>Chair: TBD</b> <b>Room: Salle 150</b>
14:00-14:30	#136 - Numerical and Experimental Investigation of the Tip Vortex Flow Induced by an Elliptical Foil M. Abdel-Maksoud <sup>1</sup> , A. Sahab <sup>1</sup> , K. Wang <sup>1</sup> , M. Felli <sup>2</sup> , S. Ceccio <sup>3</sup> , E. Guilmineau <sup>4</sup> , M. Visonneau <sup>4</sup> , J. Geese <sup>5</sup> , J. Kimmerl <sup>5</sup> , L. Bordier <sup>6</sup> , J.-C. Poirier <sup>6</sup> , J. Bosschers <sup>7</sup> , B. Meijerink <sup>7</sup> , and R. Bensow <sup>8</sup> ( <sup>1</sup> Hamburg University of Technology (TUHH), German, <sup>2</sup> National Research Council (CNR), Italy, <sup>3</sup> University of Michigan, USA, <sup>4</sup> LHEEA Lab ECN/CNRS, Nantes, France, <sup>5</sup> SCHOTTEL GmbH, Germany, <sup>6</sup> NAVAL GROUP, SIREHNA, France, <sup>7</sup> Maritime Research Institute Netherlands (MARIN) <sup>8</sup> Chalmers University of Technology, Sweden)	#80 - An Unsteady Hydrodynamic ROM for Submarine Maneuvering Using Indicial Response Functions R. Doyle <sup>1</sup> , M. Bettle <sup>1</sup> , C. Marshall <sup>2</sup> , T. Jeans <sup>2</sup> , and J.E. Martin <sup>3</sup> ( <sup>1</sup> Defence Research & Development Canada, Canada, <sup>2</sup> University of New Brunswick, Canada, <sup>3</sup> University of Iowa, USA)
14:30-15:00	#143 - An Iterative Non-linear Optimization Method for the Design of Contra-rotating Propellers for an Underwater Vehicle K. Cha <sup>1</sup> and S. A. Kinnas <sup>2</sup> ( <sup>1</sup> Mechanics, Uncertainty, and Simulation in Engineering, The University of Texas at Austin, Austin, Texas, USA, <sup>2</sup> Ocean Engineering Group,	#137 - Model Order Reduction of 5415M in Irregular Waves via Dynamic Mode Decomposition: Computational Models' Diagnostics, Forecasting, and System Identification Capabilities A. Serani <sup>1</sup> , M. Diez <sup>1</sup> , S. Aram <sup>2</sup> , D. Wundrow <sup>2</sup> , D. Drazen <sup>2</sup> , and K. McTaggart <sup>3</sup> ( <sup>1</sup> CNR-INM, Natl. Research Council-

	<i>The University of Texas at Austin, Austin, Texas, USA)</i>	<i>Institute of Marine Engineering, Rome, Italy, <sup>2</sup>Naval Surface Warfare Center Carderock Div. (NSWCCD), Bethesda, MD, USA, <sup>3</sup>Defence Research and Development Canada (DRDC), Ottawa, Ontario, Canada)</i>
15-00-15:30	#145 - Hydrodynamic and Hydroacoustic Analysis of Ducted Marine Turbines via a BEM/RANS Iterative Method and a BEM/FW-H Method K. Kumar, S. Kima, S.A. Kinnas <i>(Ocean Engineering Group, The University of Texas at Austin, Austin, Texas, USA)</i>	
<b>16:00-19:00</b>	<b>Farewell Reception</b> <b>Location: TBD</b>	