IOWTC 2022

International Offshore Wind Technical Conference

Program

CONFERENCE
December 7-8, 2022

Northeastern University
Boston, Massachusetts

https://event.asme.org/IOWTC

The American Society of Mechanical Engineers®
ASME®

ASME
SETTING THE STANDARD

Welcome to IOWTC 2022!

Dear IOWTC participants, authors, and committee members,

We are pleased to welcome you to the **Fourth International Offshore Wind Technical Conference** (**https://event.asme.org/IOWTC**), on December 7 – 8, 2022, in Boston, USA. The conference follows on the successful past conferences held in San Francisco (2018), Malta (2019) and online (2021). We have about 50 technical papers and technical presentations of very high-quality representing advances in the state-of-the-art in several topics relevant to the field of offshore wind energy. The conference is held at the scenic and intellectually stimulating campus of Northeastern University, situated right in the heart of Boston, accessible easily by public transport from the airport and major hotels in the city.

We have great pleasure in working together with the National Offshore Wind R&D Consortium (NOWRDC) in making our conference part of an "Offshore Wind Tech Week" in Boston. NOWRDC will host their conference on Dec 5 & 6 at the same venue, and we have planned interesting joint events together with them. Similar to previous conferences, we are happy to work with Amy Robertson from the National Renewable Energy Laboratory (NREL) in co-hosting their Offshore Code Comparison meeting during IOWTC.

We would like to express our sincere appreciation to our Platinum sponsor, Northeastern University and Gold Sponsor, University of Massachusetts Amherst. This conference would not have been made possible without our organizing committee, comprising of: Erik-Jan De Ridder, Konstantinos Gryllias, Jason Jonkman, Alex Koltsidopoulos-Papatzimos, Arjen Koop, Daniel Micallef, Senol Ozmutlu, Amy Roberston, Kevin Tian, Nathan Tom, Marc Cahay, Spencer Hallowell, Sanjay Arwade, Alvaro Urruchi, Alison Sheppard, and Jessica Nguyen. They served as topic and session organizers, ensuring all the papers are peer-reviewed on time. We are also very grateful for the volunteer support and all the reviewers. We also acknowledge the great support from Jamie Hart (ASME), Colleen Seaver (ASME), Mark Avila (ASME), Stacey Cooper (ASME), Kori Groenveld (NOWRDC), Margie Brenner (UMass Amherst) and Kim Toussaint (Northeastern).

We hope you enjoy the presentations and the live interactions and look forward to

Krish Thiagarajan Sharman

Conference Chair

Andrew Myers

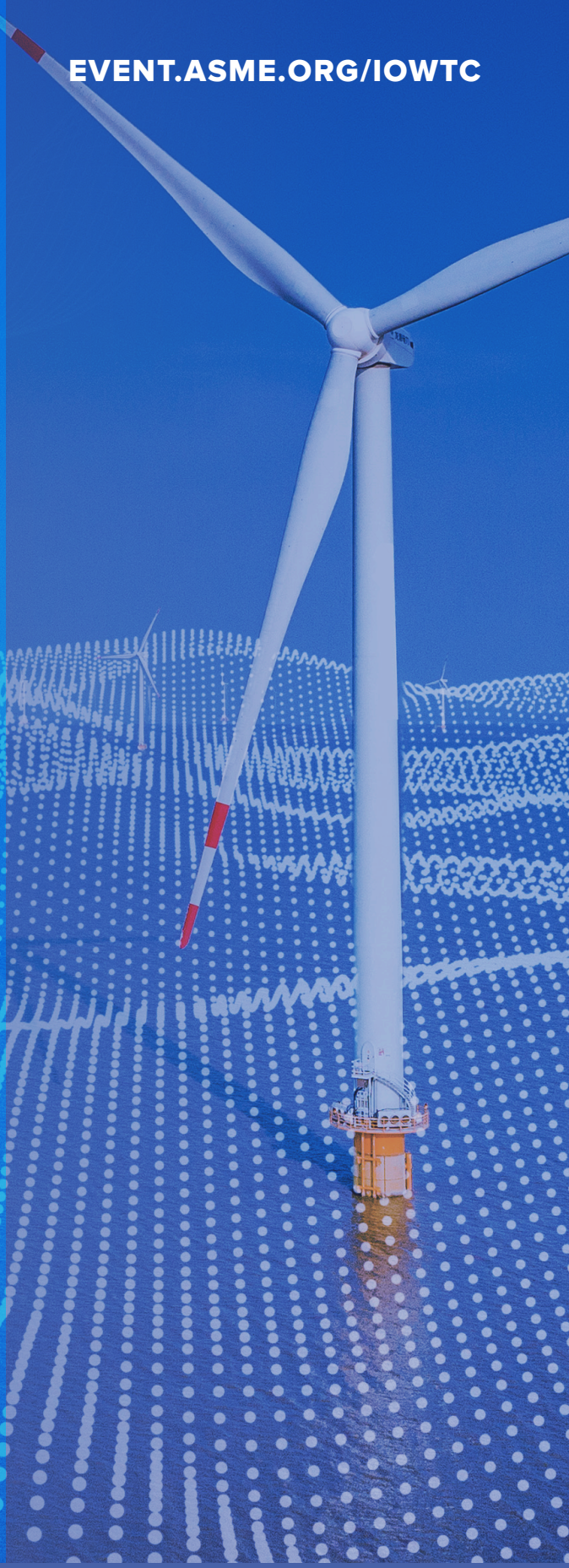
Technical Program Chair

Dominique Roddier

Technical Program Co-chair

Contents

Conference Information



- IOWTC will be held at Northeastern University.
- Registration and Sessions: **Raytheon Amphitheater & 440 Egan**
  Egan Research Center, 120 Forsyth St, Boston, MA 02115
  Egan Building is located between two landmarks on campus: the Snell Library and Centennial Common.
- Lunch: **Cabral Center**
  John D. O'Bryant African-American Institute, 40 Leon St, Boston, MA 02115
- Northeastern University campus map:
  https://campusmap.northeastern.edu/printable/campusmap.pdf
- Directions to Northeastern University's campus: https://campusmap.northeastern.edu/directions.html
- Car/Taxi: For those arriving by private car, parking is available in the Renaissance Garage at 835 Columbus Avenue. After exiting the garage, walk through the Orange Line subway station (Ruggles)
  For taxis, the best access to Egan is via Huntington Ave and Forsyth Street; Egan is the last building on Forsyth Street.
- Parking: Renaissance Parking Garage, 835 Columbus Avenue, Boston MA 02115
  Information on parking garage fees: https://www.masparc.com/renaissance-park-garage/

Via public transportation:

Northeastern is accessible by subway via the Green Line of the MBTA. From downtown Boston, take an "E" train outbound to the Northeastern stop, the first stop above ground. Walk down Forsyth toward the center of campus, and Egan Research Center is the last building on the left.

The campus can also be reached from downtown via the Orange Line by taking any train going outbound to Forest Hills and getting off at Ruggles Station. Commuter rail lines connect with the Orange Line at Ruggles Station, Back Bay Station, and North Station.

The Egan Building is just steps from the Ruggles Stop on the MBTA Orange Line. Take the Forsyth Street Exit, and Egan is the 4-story white building on the right.

MBTA WEBSITE

Registration Information

Raytheon Amphitheater Foyer, Egan Research Center

Tuesday, December 7, 7:30am – 5:00pm

Wednesday, December 8, 7:30am – 4:00pm

BADGE REQUIRED FOR ADMISSION

All conference attendees must wear the official ASME IOWTC 2022 badge at all times in order to gain admission to technical sessions, exhibits, and other conference events. Without a badge, you will not be permitted to attend any conference activities.

ASME COMPLIMENTARY MEMBERSHIP

Any attendee that pays a non-member conference registration fee will receive a four-month ASME membership free of charge. ASME will activate this complimentary membership for qualified attendees approximately four weeks after the conclusion of the conference.

PHEEDLOOP APP

Download the ASME Pheedloop App and hold the entire program in the palm of your hand! The ASME Pheedloop App allows you to easily look up sessions, search for abstracts or people, message with other attendees, and create your own schedule. Be sure to download the app for the latest information.

SESSION ROOM EQUIPMENT

Each session room is equipped with a screen, LCD projector and laptop. Speakers should have a copy of their presentation loaded onto a memory stick. It is recommended that authors/speakers bring all visual aids with them.

CONFERENCE PAPERS ELECTRONIC ACCESS

All Full Conference Registrants will receive online access to papers and presentations made at the 2022 IOWTC. Access will be granted using your registration email address. Papers that were not presented on site in Boston will not be published in the conference proceedings and cannot be cited or indexed. You will be provided with an individual link to the online papers via email. In the event you do not receive the email, send a request to: conferencepubs@asme.org.

EXHIBIT HOURS

Visit our exhibitors during the conference open hours in the Raytheon Amphitheater, on Wednesday, December 7th and Thursday, December 8th.

CONFERENCE LUNCHES

Cabral Center

Northeastern University John D. O'Bryant African-American Institute

40 Leon St, Boston, MA 02115

Conference lunches will be held from 12:00PM to 1:00 PM on Wednesday and Thursday in the Cabral Center, a brief walk across campus from the Egan Research Center where registration and technical sessions will be held. Please join your fellow attendees for a good meal and a great networking opportunity.

REFRESHMENT BREAKS

Morning Break - Registration Area

Wednesday, December 7 and Thursday, December 8	10:00AM – 10:30AM

Afternoon Break - Registration Area

Wednesday, December 7 and Thursday, December 8	2:30PM – 3:00PM

OFFSHORE WIND TECH WEEK NETWORKING EVENT

Hosted by the National Offshore Wind Research and Development Consortium (NOWRDC)

Tuesday, December 6th

5:00 – 6:30 PM

Northeastern University Alumni Center: 6th floor of Columbus Place at 716 Columbus Ave

Join fellow offshore wind innovators from across the industry to network and celebrate Offshore Wind Tech Week and the National Offshore Wind R&D Symposium. All IOWTC registrants are invited!

IOWTC 2022 OPENING RECEPTION

Sponsored by UMass Amherst

Wednesday December 7th

6:30 – 9:30 p.m

UMass Boston Campus Center, Ballroom C

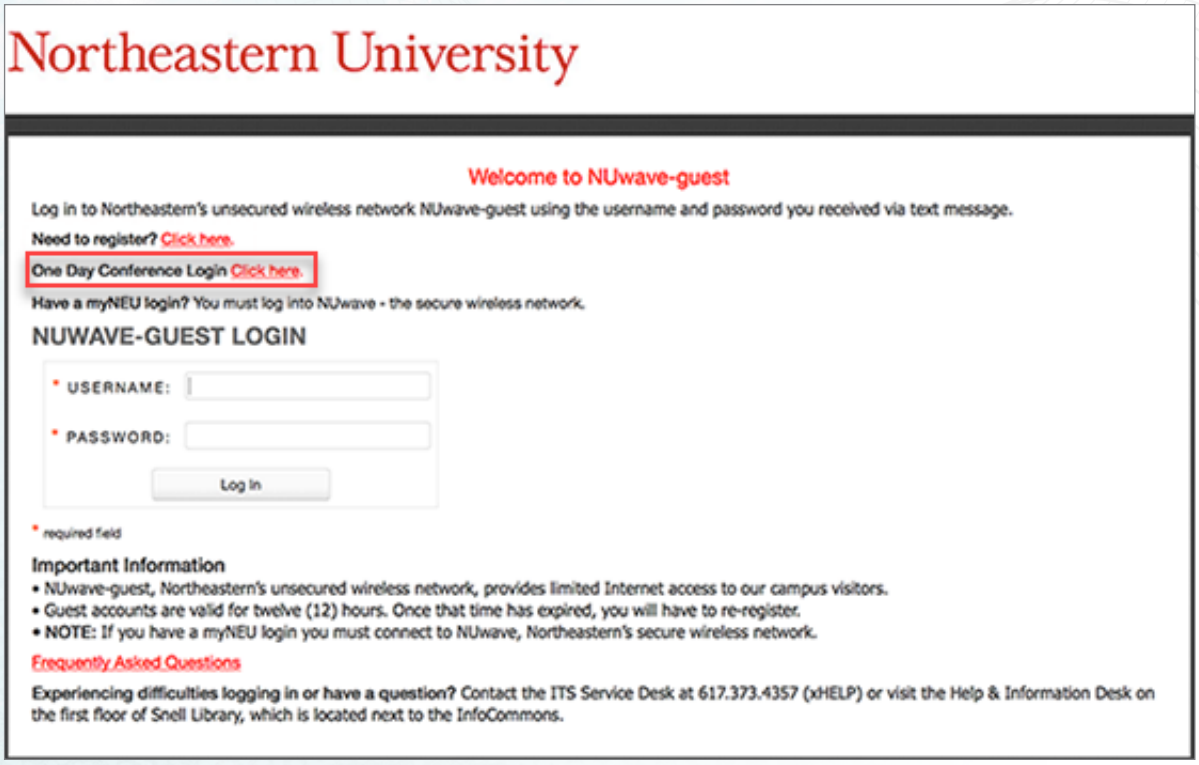
100 William T Morrissey Blvd, Boston, MA 02125

Join fellow conference attendees and local wind energy executives for a cocktail and dinner reception at UMass Boston on the Boston Harbor, hosted by the Chancellor of UMass Amherst. Marquis presenters to include IOWTC conference organizers and representatives from the UMass administration.

EMERGENCY INFORMATION

If you are experiencing a health emergency, please dial 911. If you are able or someone else is able, please dial 617-373-3333 and inform Northeastern University emergency services so the University can be on the alert for the emergency response team.

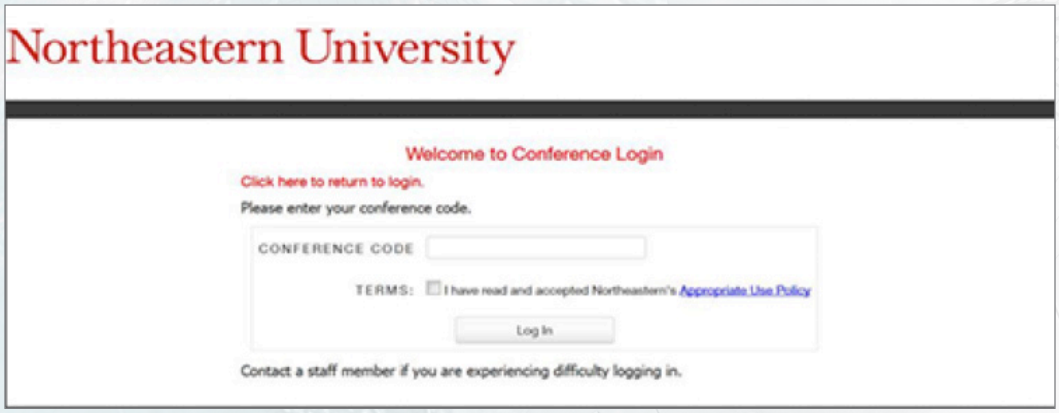
Wi-Fi Information



1. Connect to NUWave-guest from your device Wi-Fi options and you will be presented with a login page.

2. Select One Day Conference Login **Click here**.

Wi-Fi Information



3. You will be presented with the Conference Login page. **Select** the name of your conference from the drop down menu, and **enter** the access code:

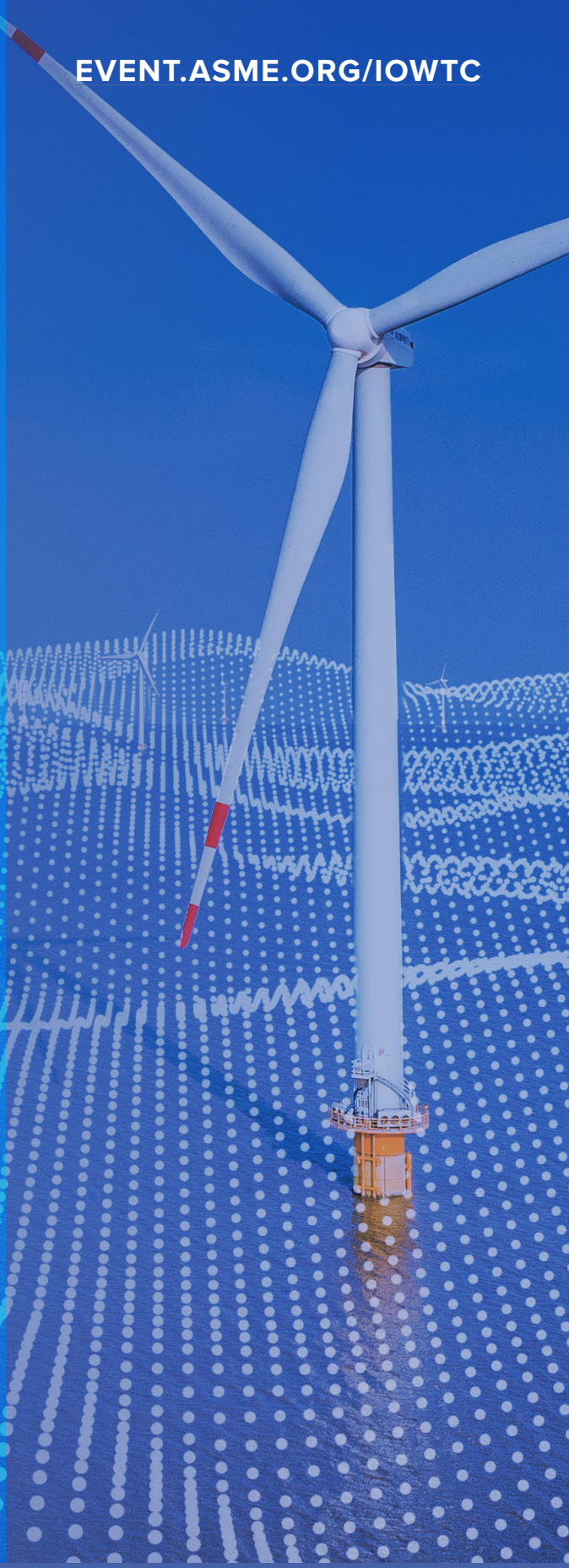
DAY 1 (Dec. 7) CONFERENCE CODE: **conf385908**

DAY 2 (Dec. 8) CONFERENCE CODE : **conf450871**

4. **Check** the box for I have read and accepted Northeastern's Appropriate Use Policy, and **click** Log in.

5. You are now connected to NUwave-guest.

Schedule at a Glance



Schedule at a Glance

WEDNESDAY, DECEMBER 7, 2022

Eastern Time		
8:00 AM to 8:30 AM	Breakfast	Raytheon
8:30 AM to 10:00 AM	Conference Welcome & Opening Plenary	Raytheon Amphitheater
10:00 AM to 10:30 AM	Networking Refreshment Break	Raytheon
10:30 AM to 12:00 PM	Hydrodynamic and Coupled Analyses I	440 Egan
10:30 AM to 12:00 PM	Metocean Characterization & Monitoring	Raytheon Amphitheater
12:00 AM to 1:00 PM	Lunch	Cabral Center
1:00 PM to 2:30 PM	Hydrodynamic and Coupled Analyses II	440 Egan
1:00 PM to 2:30 PM	O&M I	Raytheon Amphitheater
2:30PM to 3:00PM	Networking Refreshment Break	Raytheon
3:00 PM to 5:00 PM	Model Testing	440 Egan
3:00 PM to 5:00 PM	New & Innovative Floating Designs I	Raytheon Amphitheater
6:30 PM to 9:30 PM	Opening Reception Sponsored by UMass Amherst College of Engineering	UMass Boston Campus Center Ballroom C

Schedule at a Glance

THURSDAY, DECEMBER 8, 2022

Eastern Time		
8:00 AM to 8:30 AM	Breakfast	Raytheon
8:30 AM to 10:00 AM	Mooring Design & Analysis I	440 Egan
8:30 AM to 10:00 AM	New & Innovative Floating Designs II + O&M II	Raytheon Amphitheater
10:00 AM to 10:30 AM	Networking Refreshment Break	Raytheon
10:30 AM to 12:00 PM	Mooring Design & Analysis II	440 Egan
10:30 AM to 12:00 PM	Turbine Modeling	Raytheon Amphitheater
12:00 PM to 1:00 PM	Lunch	Cabral Center
1:00 PM to 2:30 PM	Mooring Design & Analysis III	440 Egan
1:00 PM to 2:30 PM	Structural Modeling & Analysis I	Raytheon Amphitheater
2:30 PM to 3:00 PM	Networking Refreshment Break	Raytheon
3:00 PM to 5:00 PM	Structural Modeling & Analysis II	Raytheon Amphitheater

Welcome Remarks

Wednesday, December 7, 2022
8:30 AM – 10:00 AM
Raytheon Amphitheater

Welcome Remarks

IOWTC 2022 CONFERENCE CHAIR

Krish Thiagarajan Sharman, Ph.D.

Professor, Endowed Chair in Renewable Energy

University of Massachusetts Amherst

Matthew Lackner, Ph.D.

Professor, Mechanical Engineering

Director, Wind Energy Center

University of Massachusetts Amherst

IOWTC 2022 TECHNICAL PROGRAM CO-CHAIR

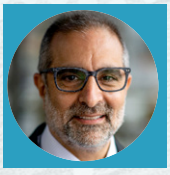
Andrew T. Myers, Ph.D., P.E.

Associate Professor and Associate Chair

Dept. of Civil and Environmental Engineering

Northeastern University

Co-Founder, T-Omega Wind, Inc.



Gregory Abowd, Ph.D.

Dean of the College of Engineering

Northeastern University

OPENING KEYNOTE

Nathan McKenzie

Technology Manager for Offshore Wind R&D

U.S. Department of Energy

DOE's Floating Wind Earthshot

Abstract: This discussion will provide information about the Floating Offshore Wind Shot - an initiative to help usher in a clean energy future by driving U.S. leadership in floating offshore wind design, development, and manufacturing.

Biography: Nate is the Technology Manager for Offshore Wind R&D within the US Department of Energy, Wind Energy Technology Office. In this role, he is responsible for developing and executing R&D plans to advance offshore wind deployments and improve offshore wind turbine performance. Nate has been working for 24 years in the maritime industry in offshore wind, ship research and development, design, and construction. Nate is a Naval Architect & Marine Engineer from Webb Institute with a master's degree in Business Administration from George Washington University.

KEYNOTE

Gordon M. Carr

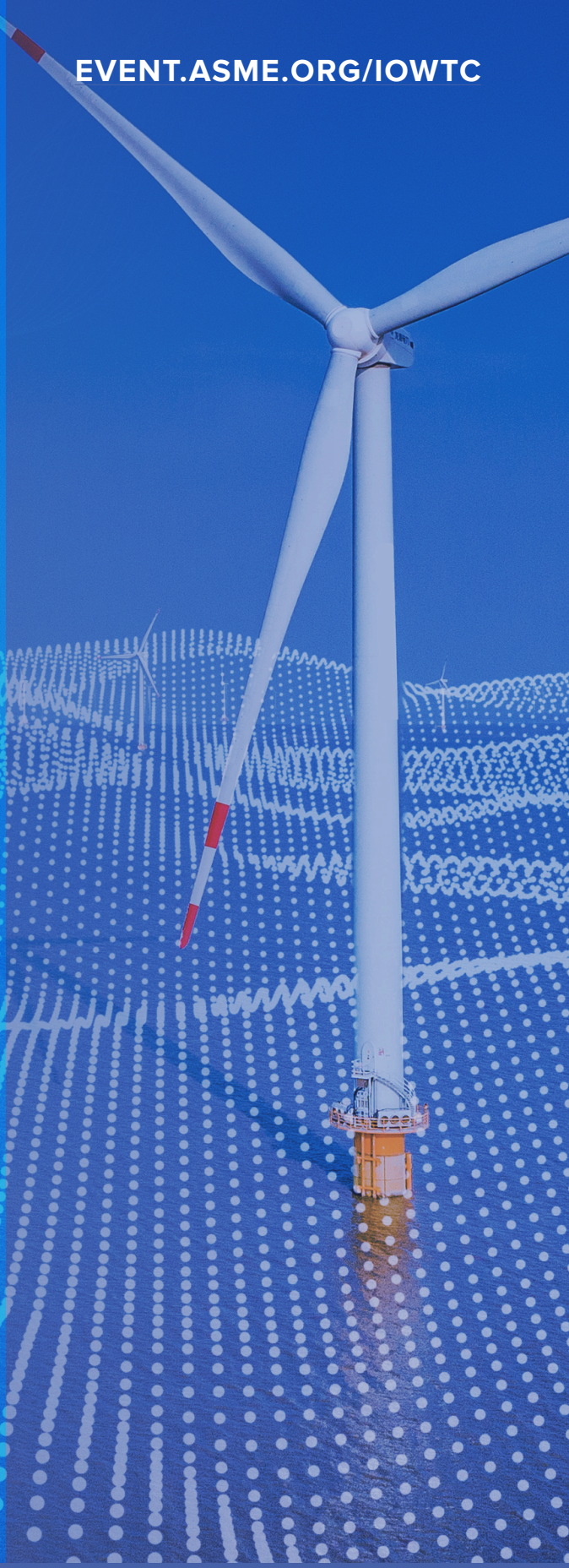
Executive Director

New Bedford Port Authority

Charting the Course: Making Room for Offshore Wind in a Commercial Fishing Port

Biography: Gordon Carr joined the New Bedford Port Authority in October 2022 as its Executive Director. Gordon's career has involved extensive work in the areas of economic development and business growth in both the public and private sectors. For the previous seven years, Gordon held multiple roles at the Massachusetts Port Authority, including leading the Department of Strategic and Business Planning and serving as Deputy Director for Strategy and Policy and Department of Real Estate and Asset Management. In these positions, Gordon was active in advancing the Port of Boston's maritime industrial goals and positioning the Authority for long term sustainable growth. Prior to Massport, Gordon managed his own economic development consulting business, advising municipalities on business recruitment and retention, and assisting businesses with site selection and credits and incentives negotiations. Gordon is a graduate of St. Lawrence University and is a lifelong resident of Massachusetts.

Technical Sessions



WEDNESDAY, DECEMBER 7, 2022

Hydrodynamic and Coupled Analyses I

10:30 AM to 12:00 PM - 440 Egan
Chair: **Spencer Hallowell -** *University of Maine*

Cfd Simulations Of Two Tandem Semi-Submersible Floating Offshore Wind Turbines Using A Computationally Efficient Fluid-Structure-Interaction Simulation Methodology

Technical Paper Publication: IOWTC2022-98645

Shengbai Xie - *Convergent Science*
Jasim Sadique - *Convergent Science*

Prediction of Heave and Pitch Low Frequency Wave Forces and Motions of a Floating Wind Turbine and Comparison With Model Test Data

Technical Paper Publication: IOWTC2022-95009

Nuno Fonseca - *SINTEF Ocean*
Carlos Eduardo Siva De Sousa - *SINTEF Ocean*
Petter Andreas Berthelsen - *SINTEF Ocean*

Comparison of Morison Forces With Cfd Modelling for a Surface Piercing Column of a Fowt

Technical Paper Publication: IOWTC2022-98419

Fatemeh H. Dadmarzi - *Sintef Ocean*
Andrea Califano - *SINTEF Ocean*
Nuno Fonseca - *SINTEF Ocean*
Petter Andreas Berthelsen - *SINTEF Ocean*

Sensitivity of Floating Offshore Wind Turbine Fatigue and Ultimate Loads to Environmental and System Property Variations

Technical Presentation Only: IOWTC2022-98172

Jason Jonkman - *National Renewable Energy Laboratory (NREL)*
Kelsey Shaler - *National Renewable Energy Laboratory (NREL)*
Amy Robertson - *National Renewable Energy Laboratory (NREL)*

Metocean Characterization & Monitoring

10:30 AM to 12:00 PM - Raytheon Amphitheate
Chair: **Jerome Hajjar -** *Northeastern University*

Non-Stationary Hurricane Hazard Considering Climate Change Effects for Offshore Wind Turbine Design

Technical Presentation Only: IOWTC2022-98653
Weichiang Pang - *Clemson University*
Susmita Bhowmik - *Clemson University*
Michael Stoner - *Clemson University*

Research Gaps in Assessing and Mitigating Risk to Offshore Wind Energy Infrastructure Exposed to Hurricanes

Technical Presentation Only: IOWTC2022-98663

Andrew Myers - *Northeastern University*
Jerome Hajjar - *Northeastern University*
Sanjay Arwade - *University of Massachusetts Amherst*
Matthew Lackner - *University of Massachusetts Amherst*
Don Degroot - *University of Massachusetts Amherst*
Eric Hines - *Tufts University*
Julie Lundquist - *University of Colorado Boulder*
Weichiang Pang - *Clemson University*
Benjamin Schafer - *Johns Hopkins University*
Benjamin Hobbs - *Johns Hopkins University*

Semi-Supervised Cnn-Based Svdd Anomaly Detection for Condition Monitoring of Wind Turbines

Technical Paper Publication: IOWTC2022-98704

Dandan Peng - *KU Leuven*
Chenyu Liu - *KU Leuven*
Wim Desmet - *KU Leuven*
Konstantinos Gryllias - *KU Leuven*

Lessons Learned From One Year Monitoring of Block Island Offshore Wind Turbines

Technical Presentation Only: IOWTC2022-98639
Babak Moaveni - *Tufts University*
Eric Hines - *Tufts University*

Hydrodynamic and Coupled Analyses II

1:00 PM to 2:30 PM - 440 Egan
Chair: **Arjen Koop -** *Marin*

Empire Wind Model Tests - Wave Loads and Responses

Technical Paper Publication: IOWTC2022-98625

Hagbart S. Alsos - *SINTEF Ocean*
Senthuran Ravinthrakumar - *SINTEF Ocean*
Ole David Økland - *SINTEF Ocean*
Csaba Pâkozdi - *SINTEF Ocean*
Louise Ankerstjerne Rolland - *Equinor*
Knut Nordheim - *Equinor*

Recent Hydrodynamic Modeling Enhancements in Openfast

Technical Paper Publication: IOWTC2022-98094

Lu Wang - *National Renewable Energy Laboratory*
Jason Jonkman - *National Renewable Energy Laboratory*
Greg Hayman - *Hayman Consulting, LLC*
Andy Platt - *National Renewable Energy Laboratory*
Bonnie Jonkman - *Envision Energy USA Ltd*
Amy Robertson - *National Renewable Energy Laboratory*

Motion and Tension Response Study of a 15mw Offshore Reference Floating Wind Turbine With a Semisubmersible

Technical Paper Publication: IOWTC2022-97385

Jiaxing Chen - *SOFEC*
Zhiyong Su - *SOFEC*
Yu Ding - *SOFEC*
Allen Liu - *SOFEC*
Arun Duggal - *SOFEC*

Numerical Analysis of the Semi-Submersible Using Absorbing Boundary Conditions

Technical Paper Publication: IOWTC2022-98001

Likhitha Ramesh Reddy - *Delft University of Technology*
Axelle Viré - *Delft University of Technology*

O&M I

1:00 PM to 2:30 PM - Raytheon Amphitheater
Chair: **Andrew Myers -** *Northeastern University*

Offshore Logistics: Scenario Planning and Installation Modelling of Floating Offshore Wind Projects

Technical Paper Publication: IOWTC2022-92660

Esperanza Susana Torres - *The University of Edinburgh*
Philipp R. Thies - *University of Exeter*
Mark Lawless - *JBA Consulting*

Marine Growth and Biofouling Challenges for Offshore Wind Structures – a Review

Technical Paper Publication: IOWTC2022-98886

Maduka Maduka - *Nantes University*
Katherine Coughlan - *University of Massachusetts*
Franck Schoefs - *Nantes University*
Krish Thiagarajan - *University of Massachusetts*
Sanjay Arwade - *University of Massachusetts*
Alison Bates - *Colby College*

Efficient Maintenance of Offshore Wind Turbines Through Optimal Sensor Placement Considering Sensor Installation Cost

Technical Presentation Only: IOWTC2022-98705

Azin Mehrjoo - *Tufts University*
Manolis Chatzis - *University of Oxford*
Costas Papadimitriou - *University of Thessaly*
Babak Moaveni - *Tufts University*
Eric Hines - *Tufts University*

Numerical Simulations of Offshore Wind Turbine Component Lifts to Determine Installation Operability

Technical Paper Publication: IOWTC2022-97574

Atheendra Sreenivasan - *MARIN USA Inc.*
Arjan Voogt - *MARIN USA Inc.*

Model Testing

3:00 PM to 5:00 PM - 440 Egan
Chair: **Jason Jonkman -** *National Renewable Energy Laboratory*

Model Testing of Non-Linear Mooring System Using an Active Mooring Simulator for Floating Offshore Wind Systems

Technical Paper Publication: IOWTC2022-97662

Alyssa McGlynn - *University of Maine*
Richard Kimball - *University of Maine*
Jacob Ward - *University of Maine*
Curtis Libby - *University of Maine*
Matt Fowler - *University of Maine*

Model Validation of the Volturnus-S Floating Wind System With Hull-Based Tuned-Mass Dampers

Technical Presentation Only: IOWTC2022-98171

Amy Robertson - *National Renewable Energy Laboratory*
Roger Bergua - *National Renewable Energy Laboratory*
Jason Jonkman - *National Renewable Energy Laboratory*
Eben Lenfest - *University of Maine*
Tuhin Das - *University of Central Florida*
Tri Ngo - *University of Central Florida*
Doyal Sarker - *University of Central Florida*
Richard Kimball - *University of Maine*

Cross-Sectorial Learning of Model Testing Methodologies Aligned to Technology TrI

Technical Paper Publication: IOWTC2022-93886

Anita Leite - *University of Edinburgh*
Thomas Davey - *University of Edinburgh*
David Dai - *University of Strathclyde*
Ajit C. Pillai - *University of Exeter*
Tom Bruce - *University of Edinburgh*

Real-Time Hybrid Testing of a Floating Offshore Wind Turbine Using a Surrogate-Based Aerodynamic Emulator

Technical Paper Publication: IOWTC2022-98642

Edward Ransley - *University of Plymouth*
Scott Brown - *University of Plymouth*
Emma Edwards - *University of Plymouth*
Tom Tosdevin - *University of Plymouth*
Kieran Monk - *University of Plymouth*
Alastair Reynolds - *University of Plymouth*
Deborah Greaves - *University of Plymouth*
Martyn Hann - *University of Plymouth*

Lab Scale Tests on Cylindrical Shells Under Combined Bending and Torsion for Wind Turbine Towers

Technical Presentation Only: IOWTC2022-98657

Victoria Ding - *Johns Hopkins University*
Dehui Lin - *Northeastern University*
Xiang Yun - *Johns Hopkins University*
Ben Schafer - *Johns Hopkins University*
Michael Shields - *Johns Hopkins University*
Andrew Myers - *Northeastern University*

New & Innovative Floating Designs I

3:00 PM to 5:00 PM - Raytheon Amphitheater
Chair: **Amy Robertson -** *National Renewable Energy Laboratory*

Development of 15mw Floating Offshore Wind Turbine Substructure Customized to Korean Shipyards

Technical Paper Publication: IOWTC2022-96596

Aldric Baquet - *Front Energies*
Kyong-Hwan Kim - *Korea Research Institute of Ships & Ocean Engineering*
Jang Kim - *Front Energies*
Se-Wan Park - *Korea Research Institute of Ships & Ocean Engineering*
Yun-Jin Ha - *Korea Research Institute of Ships & Ocean Engineering*
Hyungtae Lee - *Front Energies*
Zhirong Shen - *Front Energies*
Johyun Kyoung - *Front Energies*

Nextfloat: The Next Generation of Floating Offshore Wind Turbine

Technical Presentation Only: IOWTC2022-99316

Marc Cahay - *Technip Energies*
Hedy Mahmoudi - *X1 Wind*

Control Co-Design of Floating Offshore Wind Turbine Blade via Reinforcement Learning

Technical Presentation Only: IOWTC2022-98334

SungKu Kang - *Northeastern University*
Michael Kane - *Northeastern University*

Numerical Investigation of the Wave Following Hypothesis for a Shallow Draft Floating Wind Turbine

Technical Paper Publication: IOWTC2022-97410

Raditya Danu Riyanto - *Northeastern University*
Jim M. Papadopoulos - *T-Omega Wind Inc*
Andrew T. Myers - *Northeastern University*

Floatech - the Future of Floating Wind Turbines

Technical Presentation Only: IOWTC2022-103000

Alessandro Bianchini - *University of Florence*

THURSDAY, DECEMBER 8, 2022

Mooring Design & Analysis I

8:30 AM to 10:00 AM - 440 Egan
Chair: **Sanjay Arwade -** *University of Massachusetts Amherst*

Evaluating the Sensitivity of Mooring Line Behavior to Marine Growth Using Openfast

Technical Presentation Only: IOWTC2022-98224

Katherine Coughlan - *University of Massachusetts Amherst*
Franck Schoefs - *Nantes Universite*
Sanjay Arwade - *University of Massachusetts Amherst*
Krish Thiagarajan - *University of Massachusetts Amherst*
Don Degroot - *University of Massachusetts Amherst*
Matthew Lackner - *University of Massachusetts Amherst*

Design and Analysis of a Floating-Wind Shallow-Water Mooring System Featuring Polymer Springs

Technical Paper Publication: IOWTC2022-98149

Ericka Lozon - *National Renewable Energy Laboratory*
Matthew Hall - *National Renewable Energy Laboratory*
Paul Mcevoy - *Technology From Ideas*
Seojin Kim - *Technology From Ideas*
Bradley Ling - *Principle Power*

Estimation of Most Probable Maximum Mooring Tensions for Fowt in Shallow Water Us East Coast Environments

Technical Paper Publication: IOWTC2022-98884

Samer Saleh - *University of Massachusetts Amherst*
Ahmed Alshuwaykh - *University of Massachusetts Amherst*
Richard Akers - *Maine Marine Composites LLC*
Krish Thiagarajan - *University of Massachusetts Amherst*
Bonjun Koo - *Technip Energies USA*
Hyoungchul Kim - *Technip Energies USA*
Tapio Laihomäki - *Technip Energies USA*
Sanjay Arwade - *University of Massachusetts Amherst*
Matthew Lackner - *University of Massachusetts Amherst*
Lars Samuelsson - *ABS*

Wind-Wave Misalignment Effects on Multiline Anchor Systems for Floating Offshore Wind Turbines

Technical Presentation Only: IOWTC2022-98145

Doron Rose - *University of Massachusetts Wind Energy Center*
Matthew Lackner - *University of Massachusetts Wind Energy Center*
Sanjay Arwade - *University of Massachusetts Wind Energy Center*
Don Degroot - *University of Massachusetts Wind Energy Center*
Krish Thiagarajan - *University of Massachusetts Wind Energy Center*

New & Innovative Floating Designs II + O&M II

8:30 AM to 10:00 AM - Raytheon Amphitheater
Chair: **Arjen Koop –** *MARIN USA*

Increasing Efficiency and Power Density of Floating Offshore Wind Platforms: Assessing the Viability of Gyroscopic Stabilization and Wave Energy Converters

Technical Paper Publication: IOWTC2022-98775

Talia Toland - *Tufts University*
Gabriel Emunah - *Tufts University*
Bryony DuPont - *Oregon State University*

Theorizing a 100% Wind Scenario for Powering the Us Eastern Interconnect: Feasibility, System Design, and Lessons for a Higher-Wind-Penetration Future

Technical Paper Publication: IOWTC2022-98777

Michael Feltis - *Tufts University*
Rebecca Wolf - *Tufts University*
William Newberry - *Tufts University*
Megan Jenney - *Tufts University*
Aloysius Udenweze - *Tufts University*
Bryony DuPont - *Oregon State University*

Comparison of Operation and Maintenance of Floating 14MW Turbines and Twin 10MW Turbines

Technical Paper Publication: IOWTC2022-94188

Nadezda Avanessova - *ORE Catapult*
James Land - *Hexicon AB, Wave Hub Limited*
Alistair Lee - *Offshore Renewable Energy Catapult*
Iraklis Lazakis - *University of Strathclyde*
Camilla Thomson – *The University of Edinburgh*
Giovanni Rinaldi - *University of Exeter*

Digitalization of a Wind Farm Using 4g/5g as the New Network

Technical Presentation Only: IOWTC2022-97297

Brian Boye - *Semco Maritime A/S*

Mooring Design & Analysis II

10:30 AM to 12:00 PM - 440 Egan
Chair: **Krish Thiagarajan Sharman -** *University of Massachusetts Amherst*

Effects of Misaligned Loading on a Multiline Anchor System for Floating Offshore Wind

Technical Presentation Only: IOWTC2022-98632

Michael Davis - *University of Massachusetts Amherst*
Sanjay Arwade - *University of Massachusetts Amherst*

Thermal Characterization and Thermal Effect Assessment of Mussels Around a Dynamic Submarine Power Cable for Floating Offshore Wind Turbine

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Ziad Maksassi - *Nantes University*

Mooring Optimization Using Machine Learning Techniques

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Adrian Herrera - *Universitat Politècnica de Catalunya - BarcelonaTech*
Climent Molins - *Universitat Politècnica de Catalunya - BarcelonaTech*

The Effect of Mean Tension on Fatigue of Mooring Chain for a 12 Mw Semi-Submersible Wind Turbine

Technical Paper Publication: IOWTC2022-94183

Marit Irene Kvittem - *SINTEF Ocean*
Ludvik Bergmann - *Norwegian University of Life Sciences*

Turbine Modeling

10:30 AM to 12:00 PM - Raytheon Amphitheater
Chair: **Jason Jonkman –** *National Renewable Energy Laboratory*

Stochastic Stability of Offshore Wind Turbine Blades Influenced by Rotationally Sampled Turbulence Perturbations

Technical Paper Publication: IOWTC2022-98201

Luca Caracoglia - *Northeastern University*

Hidden Markov Modeling for Performance Assessment of an Offshore Wind Turbine at the Block Island Wind Farm

Technical Presentation Only: IOWTC2022-98622

Bridget Moynihan - *Tufts University*
Anna Haensch - *Tufts University*
Babak Moaveni - *Tufts University*
Eric Hines - *Tufts University*

Recent Numerical and Experimental Investigations on Flutter Stability of Large-Scale Wind Turbine Blades

Technical Paper Publication: IOWTC2022-98202

Shaoning Li - *Northeastern University*
Luca Caracoglia - *Northeastern University*

Mooring Design & Analysis III

1:00 PM to 2:30 PM - 440 Egan
Chair: **Sanjay Arwade -** *University of Massachusetts Amherst*

Numerical Modelling and Field Testing of a Hydraulic Mooring Damper for Application in Floating Offshore Wind

Technical Paper Publication: IOWTC2022-98595

Faryal Khalid - *University of Exeter*
Philipp R. Thies - *University of Exeter*
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Andrew Twohey - *PCCI Inc.*
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Evaluation of the Influence of Clumped Weights on Isolated Mooring Lines

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Tomas Lopez-Olocco - *Universidad Politécnica de Madrid*
Leo Miguel González Gutiérrez - *Universidad Politécnica de Madrid*
Javier Calderon-Sanchez - *Universidad Politécnica de Madrid*

Design and Verification of a Semi-Taut Synthetic Mooring System for a 15 Mw Floating Offshore Wind Turbine in Shallow Water

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Spencer Hallowell - *University of Massachusetts Amherst*
Anthony Viselli - *University of Maine*
Habib Dagher - *University of Maine*
Jack Clark - *University of Maine*

Structural Modeling & Analysis I

1:00 PM to 2:30 PM - Raytheon Amphitheater
Chair: **Marc Cahay -** *Technip Energies*

Recommendations for Surface Imperfection Surveys for Thin-Walled Metal Wind Turbine Support Towers

Technical Paper Publication: IOWTC2022-98659

Lijithan Kathirkamanathan - *Imperial College London*
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Glauconitic Sand Challenges for Us Offshore Wind Development

Technical Paper Publication: IOWTC2022-98666
Zack Westgate - *University of Massachusetts Amherst*
Chris McMullin - *University of Massachusetts, Amherst*
Don Degroot - *University of Massachusetts Amherst*

Validation of a Fully Integrated Numerical Simulation Method to Assess Structural Integrity on a Flexible Model of Fowt Using Rb-Fea

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Seth Price - *Principle Power*
Sylvain Vallaghe - *Akselos*

Structural Modeling & Analysis II

3:00 PM to 5:00 PM - Raytheon Amphitheater
Chair: **Alvaro Urruchi del Barrio -** *Ocergy*

A Highly Efficient and Rapid Cost-Optimization Framework for Offshore Wind Turbine Foundations for an Entire Windfarm Site

Technical Paper Publication: IOWTC2022-99119

Martin Bjerre Nielsen - *Wood Thilsted*
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A Geotechnical Modelling Framework for the Tilting Analysis of Offshore Monopiles Under Environmental Cyclic Loading

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Evangelos Kementzetzidis - *Delft University of Technology*

Finite Element Design Study of Dynamics in Submarine Power Cables for Offshore Renewable Wind Energy

Technical Paper Publication: IOWTC2022-98245

Chun Ting Poon - *National University of Ireland, Galway*
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Enda O'Connell - *National University of Ireland, Galway*
Aengus Connolly - *Wood Group Kenny*
Sean Leen - *National University of Ireland, Galway*

Time-Domain Response-Based Structural Assessment of a Floating Offshore Wind Turbine – Part 1: Buckling and Ultimate Strength Assessment

Technical Paper Publication: IOWTC2022-96497

Wonki Moon - *Korean Register*
Zhirong Shen - *Front Energies*
Johyun Kyoung - *Front Energies*
Hyungtae Lee - *Front Energies*
Mugyeom Lee - *Korean Register*
Aldric Baquet - *Front Energies*
Kanghyun Song - *Korean Register*
Booki Kim - *KRISO*
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Conceptual Monopile Design Near Ma/ri Lease Areas Using the Iea 15 Mw Reference Wind Turbine

Technical Presentation Only: IOWTC2022-98707

John DeFrancisci - *Tufts University*
Daniel Kuchma - *Tufts University*

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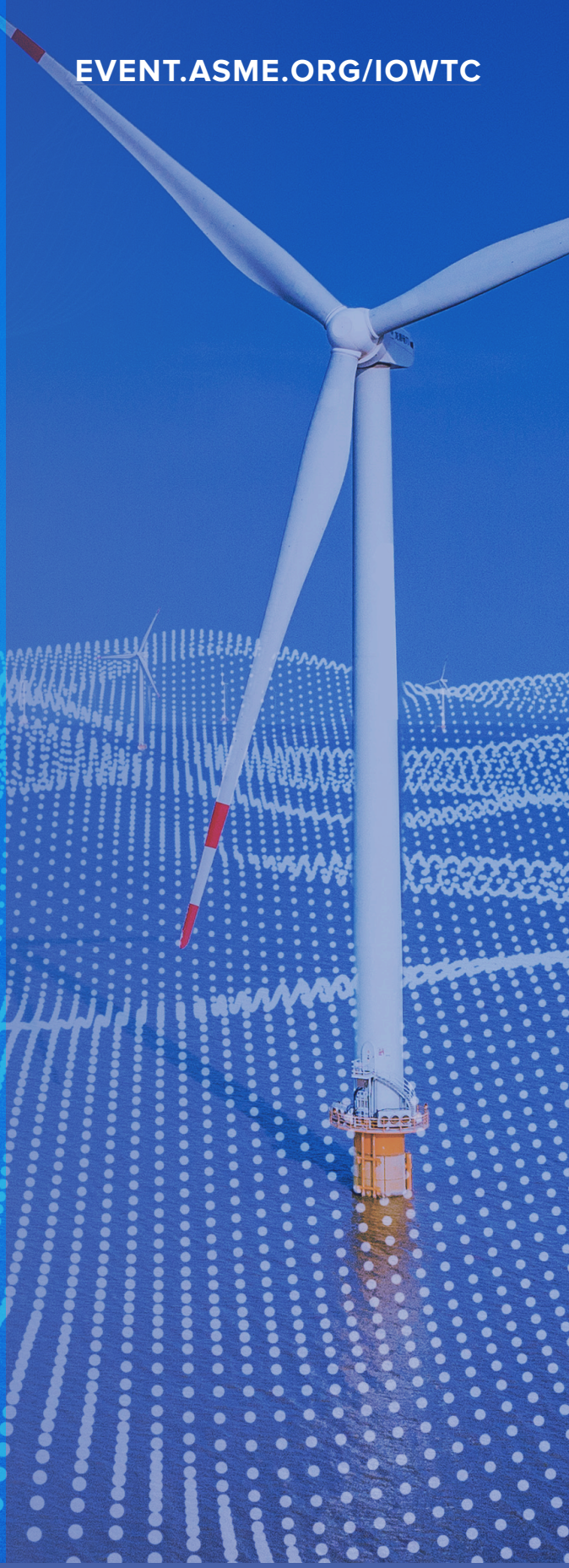

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Avanessova	Nadezda	94188	Comparison of Operation and Maintenance of Floating 14MW Turbines and Twin 10MW Turbines	New & Innovative Floating Designs II + O&M II
Berthelsen	Petter Andreas	95009	Prediction of Heave and Pitch Low Frequency Wave Forces and Motions of a Floating Wind Turbine and Comparison With Model Test Data	Hydrodynamic and Coupled Analyses I
Berthelsen	Petter Andreas	98419	Comparison of Morison Forces With Cfd Modelling for a Surface Piercing Column of a Fowt	Hydrodynamic and Coupled Analyses I
Bianchini	Alessandro	103000	Floatech - the Future of Floating Wind Turbines	New & Innovative Floating Designs I
Boye	Brian	97297	Digitalization of a Wind Farm Using 4g/5g as the New Network	New & Innovative Floating Designs II + O&M II
Cahay	Marc	99316	Nextfloat: The Next Generation of Floating Offshore Wind Turbine	New & Innovative Floating Designs I
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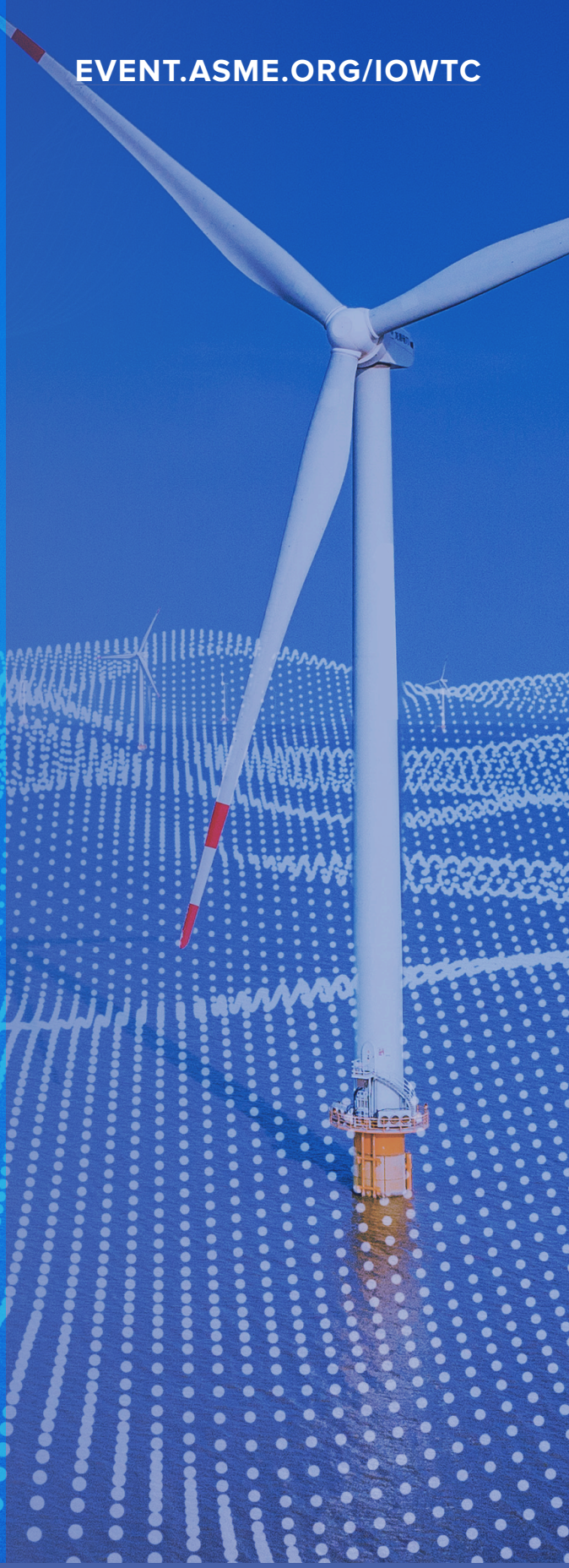

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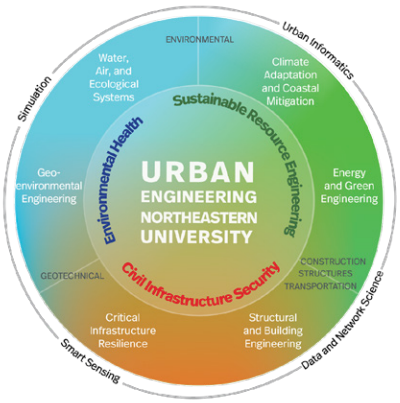

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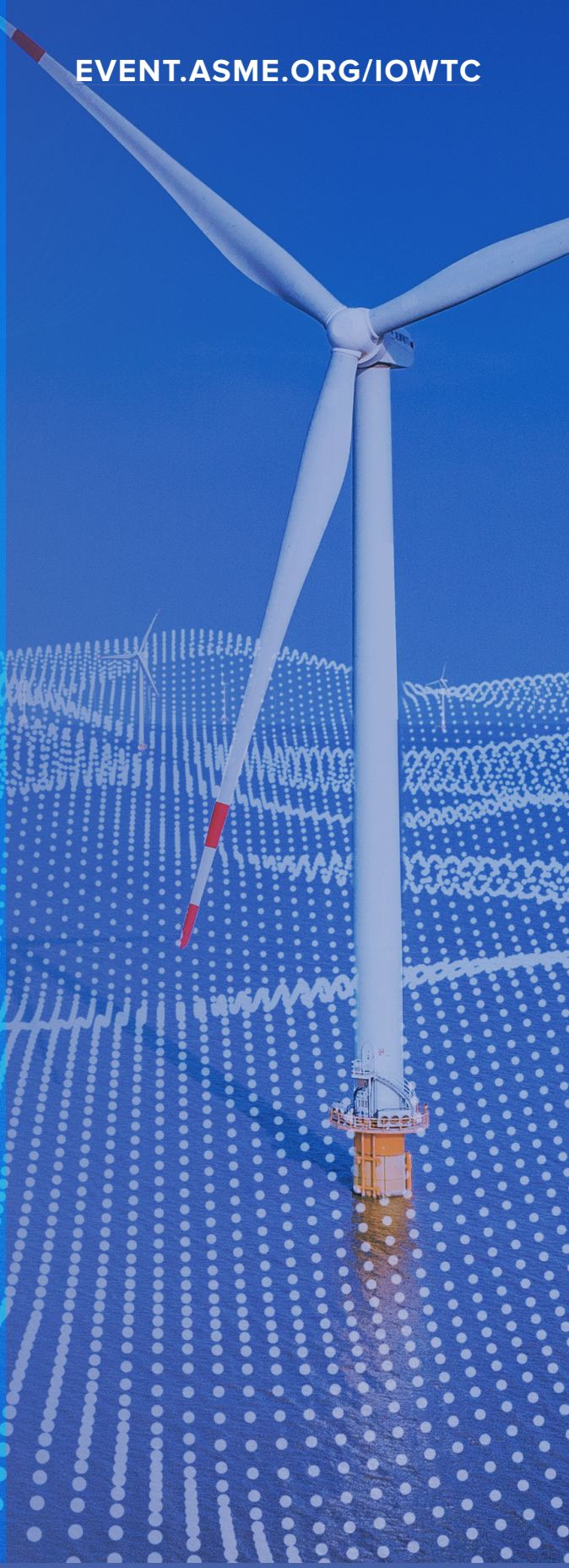

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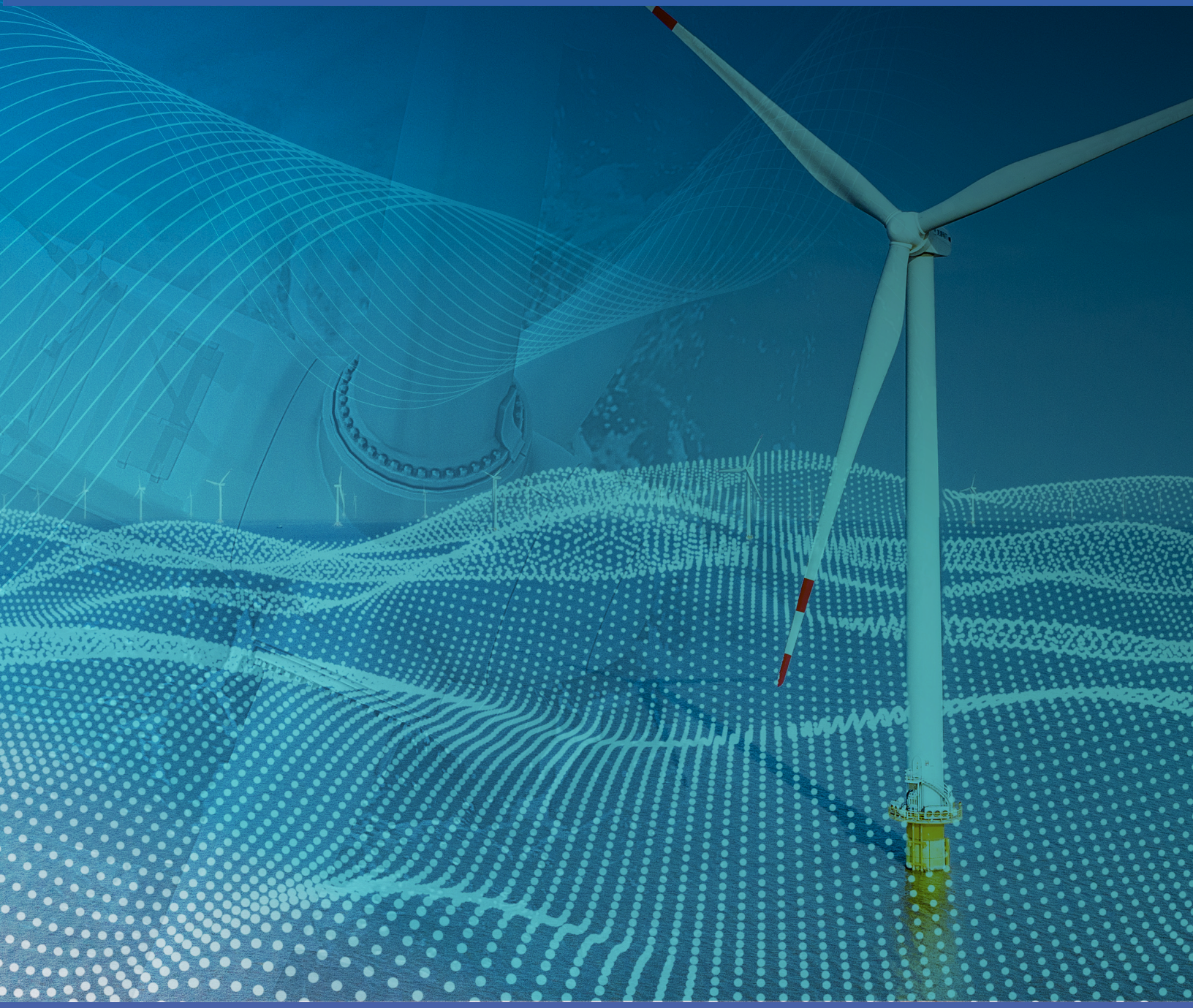

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