8th Annual North Carolina Renewable Ocean Energy Symposium
Coastal Studies Institute
Wanchese, North Carolina
April 15-16, 2019

April 15

7:30 AM  Registration and Breakfast (Rm 242)
8:00 AM  Welcome and Introductions (Rm 262)
8:10 AM  Expectations for the 7th Annual NC Renewable Ocean Energy Symposium

Session I: Hydrokinetic Resource Assessment

8:20 AM  Gulf Stream Observational Resource Assessment - Mike Muglia, Patterson Taylor, and Nick DeSimone
8:45 AM  Comprehensive Gulf Stream Ocean Energy Resource Assessment Using an Integrated Observing and Modeling Approach - Rouying He and John Bane

Session II: Human Dimensions and Environmental Impacts

9:15 AM  Human dimensions of marine and hydrokinetic energy development off the NC coast: The role of values and attitudes in the social acceptability of a new use of marine space - Linda D’Anna
9:40 AM  An integrative and holistic environmental and ecological assessment of the Gulf Stream current environment of the coast of Cape Hatteras, NC - Lindsay Dubbs, Michael Piehler, Larisa Avens, Steve Lockhart, Jinchun Yuan, and Rouying He
10:05 AM  Dynamically Coupling the Impact of Marine Hydrokinetic Devices on the Wave Field and Sediment Transport - Alejandra Ortiz
10:30 AM  Student Poster Session (Room 250)
12:00 PM  Lunch (Rm 242)

Session III: Expanding MHK Research and Education Capacity

12:45 PM  Energy Harvesting from Ocean Waves through Education and Research - Michael Atkinson
1:10 PM  Jennettes Pier Wave Energy Test Facility - Mike Muglia and Lindsay Dubbs

Session IV: Innovative System Components: Development and Optimization

1:40 PM  Liquid Crystal Thermoset Composites for Marine Energy Harvesting - Mark Pankow and Theo Dingemans
2:05 PM  A Hermetically Sealed Magnetically Geared Marine Hydrokinetic Generator - Wesley Williams and Jonathan Bird
2:30 PM  
Evaluating Magnetic Gearboxes under Failure Scenarios from Jennette’s Pier Wind Turbines using Computational Fluid Dynamics - Wesley Williams and Navid Goudarzi

2:55 PM  
*Break (Rm 242)*

3:10 PM  
Developing North Carolina Manufacturing for Source Laminated Steel Parts for use in Magnetic Gear Assemblies - Wesley Williams

3:35 PM  
Advanced Control, Prognostics and Health Management (PHM) for WEC Systems Using Heterogenous Underwater Communication Network - Tiefu Zhao and Tao Han

4:00 PM  
Dynamic Modeling and Optimal Control of Three-Dimensional Ocean Current Turbine Arrays in Realistic Gulf Stream Turbulence Environments - Chris Vermillion, Praveen Ramaprabhu, and Mike Muglia

4:25 PM  
Tethered Coaxial Turbines for Hydrokinetic Energy Harvesting - Kenneth Granlund, Andre. O. Mazzoleni, and Matthew Bryant

4:50 PM  
Questions and Discussion

5:20 PM  
Adjourn

5:45 PM  
*Reception (Avenue Grille, Manteo, NC): Student poster session and cash bar at 5:45 PM and dinner at 6:30 PM*
April 16

8:30 AM  Reconvene - coffee in rm 250
8:45 AM  Keynote

Session V: Electrical Interface and Power Transmission

9:45 AM  Hybrid High Voltage AD/DC System Protection and Controls for Interfacing Off-Shore Power Generations with On-shore Grid - Madhav D. Manjrekar and Badrul Chowdhury

10:10 AM  Session VI: Energy Storage

10:40 AM  Optimal Techniques for Near-isothermal Compression and Expansion using Liquid-Piston - Paul Ro and Jun Liu
Optimal Sizing and Operation of HESS (Hybrid-Energy-Storage System) for Integration of Multiple Wave Energy Conversion (WEC) Systems - Subhashish Bhattacharya

11:05 AM  Lunch (Rm 242)

Session VII: Mooring and Anchoring

12:15 PM  Analyses for Instability of MHK Structure on Sloping Seabed Coupled with Evolving Morphology due to Sediment Transport - M.S. Rahman, Alejandra Ortiz, and M.A. Gabr
12:40 PM  Structural Health Monitoring of Micropiles for Anchoring Marine Hydrokinetics off the North Carolina Coast - Mohammad PourGhaz
1:05 PM  Load Capacity Model and Durability of Micropiles Anchoring Marine Hydrokinetic Device - Mo Gabr, Roy Borden, and Mohammad PourGhaz
1:30 PM  Bio-mediated Soil for Mitigation of Scour at Foundation Supporting Marine Hydrokinetics Devices - Brina Montoya, Mo Gabr, and Jinung Do

1:55 PM  Questions and Discussion

2:30-3:30 PM  Technical Advisory Committee meeting (Rm 242)
2:30-3:30 PM  Break out: Interactive Researcher Session
3:30 PM  Report out and discussion (poster session winners announced)
4:00 PM  Adjourn