

Kevin John Maki

Associate Professor

Department of Naval Architecture and Marine Engineering

University of Michigan, College of Engineering

2600 Draper Drive

Ann Arbor, MI, 48109-2145

Office Phone: 734-936-2804

Office Fax: 734-936-8820

Cell Phone: 734-834-6858

kjmaki@umich.edu

Education

University of Michigan

Ph.D. December 2005, Department of Naval Architecture and Marine Engineering

Dissertation Title: "Transom Stern Flow"

Advisor: Prof. Armin Troesch

M.S.E. April 2004, Department of Aerospace Engineering

M.S.E. August 2002, Department of Naval Architecture and Marine Engineering

B.S.E. April 2001, Department of Naval Architecture and Marine Engineering, *Summa*

Cum Laude

Appointments

Positions at U of M

1. Associate Professor, September 2017 - Present
2. Assistant Professor, September 2011 – August 2017
3. Assistant Research Scientist and Adjunct Lecturer, May 2007 - August 2011
4. Research Fellow and Adjunct Lecturer, January 2006 - April 2007

Positions at other institutions or organizations

1. **Naval Surface Warfare Center Carderock Division**, Bethesda, Maryland USA
ONR Summer Faculty Fellow, May – July, 2007, 2009
2. **CNR-INSEAN (The Italian Ship Model Basin)**, Rome, Italy
Visiting Professor, July, 2008, 2010, 2011

Honors and Awards

International

1. Landrini Award, October 2012. Given in acknowledgement of scientific achievements in the field of computational fluid dynamics for marine applications and fostering international relations at an early stage.

National

1. 2014 Office of Naval Research Young Investigator Award
2. ONR Summer Faculty Fellow, Naval Surface Warfare Center Carderock Division, 2007, 2009
3. National Defense Science and Engineering Graduate Fellowship, 2001
4. American Society of Naval Engineers Graduate School Scholarship, 2001
5. Society of Naval Architects and Marine Engineering Undergraduate Scholarship, 2000
6. Michigan Community College Scholarship, 1998
7. Eagle Scout, Boy Scouts of America, 1992

Institutional

1. Department Outstanding Faculty Achievement Award Winner, 2017
2. Department of Naval Architecture and Marine Engineering Outstanding Faculty Award, 2017
3. Department of Naval Architecture and Marine Engineering Distinguished Achievement Award, 2000, 2001
4. American Bureau of Shipping Undergraduate Scholarship, 1999

Teaching

New courses introduced at U of M

1. **NA 203 *Physics of Sailing***: The objective of NA 203 is to aide students with the transition from courses in calculus and physics to the engineering-specific portion of the curriculum through learning about the physical principles that allow boats to sail through the water. A sailboat is an ideal application to learn about physics, engineering, fluid mechanics, dynamics, structures, and design. The course is taught at the sophomore level and covers the topics of: the balance of forces and moments, the generation of the hydrostatic, hydrodynamic, and aerodynamic forces, and the way that the sailor adjusts the sails and rudder to efficiently travel through the water. The course includes laboratory exercises in the Marine Hydrodynamics Laboratory (MHL) to augment the lectures.
2. **NA 423 *Introduction to Numerical Hydrodynamics***: The objective of NA 423 is to prepare senior students to perform industrial computational fluid dynamics simulations, and expose first-year graduate students to fundamental principles that are used to develop state-of-the-art CFD solvers. The topics include: numerical integration, uncertainty analysis, and solution of partial-differential equations using finite differences and finite-volume methods, turbulence modeling and algorithms for solving the Navier-Stokes equations, and introduction to solution of air-water flows. Computer lab sessions introduce the student to the computing environment for source-code development, mesh generation, simulation, and post-processing.

3. **NA 523 Numerical Marine Hydrodynamics:** The objective of NA523 is to develop the necessary skills to numerically predict the hydrodynamic performance of bodies that move in the marine environment. Topics include numerical uncertainty analysis, panel methods for the free-surface Green function and Michell's integral, discretization fundamentals for unstructured finite-volume methods, interface capturing methods, and turbulence modeling for ship flows. (Note, NA523 was previously introduced and taught as NA620, but renamed 523 with a rearrangement of material.)

Courses taught at U of M

Course #	Course Title	Teaching Role (1)	Term	Enrollment/Response	Q1	Q2	Q4
NA499	Physics of Sailing	Instructor	Winter 2018	12/13	4.75	4.95	4.90
NA270	Marine Design	Instructor	Fall 2017	33/39	3.62	4.00	4.87
NA423	Intro to Num Hydro	Instructor	Winter 2017	8/12	4.83	4.93	4.64
NA270	Marine Design	Instructor	Fall 2016	20/9	4.86	4.86	5.00
NA523	Num Marine Hydro	Instructor	Winter 2016	7/6	5.00	5.00	5.00
NA423	Intro to Num Hydro	Instructor	Fall 2015	9/8	4.83	4.83	4.83
NA423	Intro to Num Hydro	Instructor	Winter 2015	31/21	4.75	4.88	4.84
NA320	Fluid Mechanics I	Instructor	Fall 2014	33/33	4.41	4.78	4.14
NA401	Small Craft Design	Instructor	Fall 2013	27/23	4.68	4.86	4.86
NA320	Fluid Mechanics I	Instructor	Fall 2013	38/37	4.41	4.76	4.14
NA620	Num Marine Hydro	Instructor	Winter 2013	13/12	4.90	4.95	4.83
NA599	Intro to Num Hydro	Instructor	Fall 2012	21/20	4.82	4.87	4.71
NA620	Num Marine Hydro	Instructor	Winter 2012	18/13	4.33	4.85	4.75
NA401	Small Craft Design	Instructor	Fall 2011	23/20	4.79	4.91	4.83
NA620	CFD in Ship Design	Instructor	Winter 2011	20/13	4.69	4.78	4.78
NA401	Small Craft Design	Instructor	Fall 2010	17/14	4.36	4.57	4.86
NA403	Sailing Craft Design	Instructor	Winter 2010	14/13	4.40	4.42	4.57
NA401	Small Craft Design	Instructor	Fall 2009	16/12	4.83	4.75	4.83
NA403	Sailing Craft Design	Instructor	Winter 2009	17/8	4.83	4.93	5.00
NA401	Small Craft Design	Instructor	Fall 2008	26/13	4.19	4.25	4.75
NA401	Small Craft Design	Instructor	Fall 2007	12/12	4.90	5.00	4.90
NA403	Sailing Craft Design	Instructor	Winter 2007	11/11	4.11	4.19	4.13
NA401	Small Craft Design	Instructor	Fall 2006	14/14	3.38	3.38	4.50
NA403	Sailing Craft Design	Instructor	Winter 2006	18/14	4.72	4.50	4.72

(1): Co-instructor, recitation/discussion leader, sole instructor

Q1: Overall, this was an excellent course; Q2: Overall, the instructor was an excellent teacher; Q4: I had a strong desire to take this course. Evaluations are on a 5 point scale where 5 is Strongly Agree and 1 is Strongly Disagree.

Ph.D. committee activity

Chaired/Co-Chair

1. Bradford Knight, pre-candidate, expected completion date: May 2021, Chair
2. Paul White, candidate, expected completion date: May 2020, Chair
3. Wenzhe Xu, candidate, expected completion date: May 2020, Chair
4. Haixuan He, candidate, expected completion date: December 2019, Chair
5. Jonmarcos Diaz, candidate, expected completion date: May 2019, Co-Chair with Prof. Nickolas Vlahopoulos

6. Jose Mesa, September 2018, "Hydroelastic Analysis of Aluminum and Composite High-Speed Planing Craft Structures During Slamming" Chair (Current position: Chevron)
7. Matthew Graham, August 2018, "Numerical Analysis of Local and Global Hydroelastic Response of Wetdeck Slamming Events on Multihull Vessels", Chair (Current position: Software Developer and Designer, North Sails)
8. Yang Chen, January 2017, "A Velocity Decomposition Approach for Three-Dimensional Unsteady Viscous Flow at High Reynolds Number", Chair (Current position: Research Engineer, Exxon Mobil Upstream Research Company)
9. Oscar Tascon, August 2016, "Parametrically Excited Transverse Plane Instabilities on High-Speed Planing Hulls", Co-Chair with Prof. Armin Troesch (Current Position: Captain, Columbian Navy)
10. Marc Woolliscroft, May 2015, "A Linearized Free-Surface Method for Prediction of Unsteady Ship Maneuvering", Chair (Current position: Software Development Engineer, ESI Group)
11. William Rosemurgy IV, January 2014, "A Velocity Decomposition Approach for Lifting and Free-surface Flows", Co-Chair with Prof. Robert Beck (Current position: Senior Account Executive, TotalCAE)
12. Grzegorz Filip, October 2013, "High-Resolution Numerical Simulation of Turbulent Interfacial Marine Flows", Chair (Current position: Assistant Research Scientist, University of Michigan)
13. Dominic Piro, July 2013, "A Hydroelastic Method for the Analysis of Global Ship Response Due to Slamming Events", Chair (Current position: Scientist, Navatek Ltd.) *Winner of the Richard and Eleanor Towner Prize for Distinguished Academic Achievement.*
14. Alton Luder III, March 2013, "A Block-Jacobi Time Spectral Method for Incompressible Flow", Chair (Current position: Hydraulic Engineer, Carver Pump Company)
15. Deborah Edmund, October 2012, "A Velocity Decomposition Method For Efficient Numerical Computation of Steady External Flows", Co-Chair with Prof. Robert Beck (Current position: unknown)
16. Wei Wu, May 2011, "Two-Dimensional RANS Simulation of Flow-Induced Motion Of Circular Cylinder with Passive Turbulence Control", Co-Chair with Prof. Michael Bernitsas (Current position: Naval Architect, Helix Energy Solutions Group)

M.S. students advised/co-advised

1. Suyash Tandon, M.S. August 2015. "Large-Eddy Simulations of Flow Over Backward Facing Ramp with Vortex Generator"
2. Yang Chen, M.S. December 2013. "A Velocity-Decomposition Approach for Unsteady Flow"
3. ENS William Garland, M.S. December 2011. "Stepped Planing Craft: A Numerical Study". Thesis work represented in *Journal of Ship Production and Design* (2012), and selected as a Significant Paper of 2012, and re-published in the 2012 volume of the *SNAME Transactions*.

Publications and Scholarly Presentations

1. Underline the names of graduate student(s) to whom you've provided significant guidance listed among the authors;
2. Undergraduate students should be single underlined and noted by an asterisk * after their name.

Full articles in refereed publications (*Full articles in refereed journals, transactions, or archives that have appeared or have been accepted only*)

1. Jose Mesa and Kevin J. Maki (2018) "Hydroelastic Assessment of Different High-Speed-Vessel Stiffened Panel Designs", *Naval Engineers Journal*, September, No 130-3, pp 33-42.
2. Ping He, Charles A Mader, Joaquim RRA Martins, Kevin J Maki (2018), "An aerodynamic design optimization framework using a discrete adjoint approach with OpenFOAM", *Computers & Fluids*, vol 168, pp 285-303.
3. Bradford Knight, Robert Freda, Yin Lu Young, Kevin Maki (2018), "Coupling Numerical Methods and Analytical Models for Ducted Turbines to Evaluate Designs", *Journal of Marine Science and Engineering*, vol 6, no 2, pp 1-19.
4. D. Skene, L. Bennetts, M. Wright*, M. Meylan, Kevin J. Maki (2018), "Water wave over wash of a step", *Journal of Fluid Mechanics*, vol 839, pp 293-312.
5. Simo A. Mäkiharju, In-Ho R. Lee, Grzegorz P. Filip, Kevin J. Maki and Steven L. Ceccio (2017) "The topology of gas jets injected beneath a surface and subject to liquid cross-flow", *Journal of Fluid Mechanics*, vol 818, pp 141-183.
6. A.A. Korobkin, T.I. Khabakhpasheva, and Kevin J. Maki (2017) "Hydrodynamic forces in water exit problems", *Journal of Fluids and Structures*, vol 69, pp. 16-33.
7. Yang Chen and Kevin J. Maki (2017), "A Velocity Decomposition Approach for Three-Dimensional Unsteady Flow", *European Journal of Mechanics – B/Fluids*, vol. 62, pp. 94-108.
8. Marc O. Woolliscroft and Kevin J. Maki (2016) "A fast-running CFD formulation for unsteady ship maneuvering performance prediction" *Ocean Engineering*, vol. 117, pp. 154-162.
9. William J. Rosemurgy, Robert F. Beck, and Kevin J. Maki (2016) "A Velocity Decomposition Formulation for 2D Steady Incompressible Lifting Problems", *European Journal of Mechanics – B/Fluids*, vol. 58, pp. 70-84.
10. Thomas E. Schellin, Vladimir Shigunov, Armin W. Troesch, Daehyun Kim, and Kevin Maki (2015) "Prediction of Loads for Ship Structural Design" *Naval Engineers Journal*, vol. 127, no. 1, March, pp. 103-134.
11. Danilo Durante, Riccardo Brogna, Kevin J. Maki, and Andrea Di Mascio (2014), "A Study on the Effect of the Cushion Pressure on a Planing Surface", *Ocean Engineering*, vol. 91, pp. 122-132.
12. Wei Wu, Michael Bernitsas, Kevin Maki (2014) "RANS Simulation vs. Experiments of Flow-Induced Motion of Circular Cylinder with Passive Turbulence Control at $35,000 < Re < 130,000$ ", *Journal of Offshore Mechanics and Arctic Engineering*, vol. 136, no. 4.

13. Dominic J. Piro and Kevin J. Maki (2013) "Hydroelastic Analysis of Bodies that Enter and Exit Water", *Journal of Fluids and Structures*, vol 37, pp 134-150.
14. Kevin J. Maki, Riccardo Broglia, Lawrence J. Doctors, and Andrea Di Mascio (2013) "Numerical Investigation of the Components of Calm-Water Resistance of a Surface-Effect Ship", *Ocean Engineering*, vol. 72, pp. 375–385.
15. Matthew R. Kramer, Kevin J. Maki, Yin Lu Young (2013) "Numerical Prediction of the Flow Past a 2-D Planing Plate at Low Froude Number", *Ocean Engineering*, vol. 70, pp. 110-117.
16. Alan Tassin, Dominic J Piro, Alexander A Korobkin, Kevin J Maki, Mark J Cooker (2013) "Two-dimensional water entry and exit of a body whose shape varies in time", *Journal of Fluids and Structures*, vol. 40, pp. 317-336.
17. Deborah O. Edmund and Kevin J. Maki and Robert F. Beck (2012) "A Velocity-Decomposition Formulation for the Incompressible Navier-Stokes Equations", *Computational Mechanics*, vol. 52, pp. 669-680.
18. Paolo Geremia, Kevin Maki, Gianpiero Lavini, and Harpo Genuzio (2012) "Hull design method combining an innovative flow solver coupled with efficient multivariate analysis and optimization strategies" *Journal of Ship Production and Design*, vol. 28, no. 4, pp. 1-8.
19. William Garland and Kevin Maki (2012) "A Numerical Study of a Two-Dimensional Stepped Planing Surface", *Journal of Ship Production and Design*. vol. 28, no. 2, pp. 1-13.
20. Kevin J. Maki, Ricardo Sbragio, Nickolas Vlahopoulos (2012) "System Design of a Wind Turbine using a Multi-Level Optimization Approach", *Renewable Energy*, vol. 43, pp. 101-110.
21. Kevin J. Maki, Riccardo Broglia, Lawrence J. Doctors, and Andrea Di Mascio (2012) "Nonlinear Wave Resistance of a Two-dimensional Pressure Patch Moving on a Free Surface", *Ocean Engineering*, vol. 39, pp. 62-71.
22. Steven F. Zalek, Dale G. Karr, Sara Jabbarzadeh and Kevin J. Maki (2011), "Modeling Air Cushion Vehicle Flexible Seals Under Steady State Conditions", *International Journal of Ocean Systems Engineering*, vol. 1, no. 1, pp. 17-29.
23. Kevin J. Maki, Donghee Lee, Armin W. Troesch, and Nickolas Vlahopoulos (2011) "Hydroelastic Impact of a Wedge-Shaped Body", *Ocean Engineering*, vol. 38, pp. 621-629.
24. Kwang-Jun Paik, Pablo M. Carrica, Donghee Lee, and Kevin Maki (2009), "Strongly Coupled Fluid-Structure Interaction Method for Structural Loads on Surface Ships", *Ocean Engineering*, vol. 36, pp. 1346-1357.
25. Maki, K.J. and Troesch, A.W. and Beck, R.F. (2008), "Experiments of Two-Dimensional Transom Stern Flow", *Journal of Ship Research*, vol. 52, no. 4, pp. 291-300, December.
26. Maki, K.J., Doctors, L.J., Beck, R.F., Troesch, A.W. (2006), "Transom-Stern Flow for High-Speed Craft", *Australian Journal of Mechanical Engineering*, vol. 3, no. 2, pp. 191-198.

Refereed conference or symposium proceedings papers

Conference papers that are strictly reviewed and are of journal quality are identified by b

1. b Wenzhe Xu, Grzegorz P. Filip, and Kevin J. Maki (2018) "A Method for the Prediction of Extreme Ship Responses using Design-Event Theory and Computational Fluid Dynamics", *32nd Symposium on Naval Hydrodynamics*, Hamburg, Germany, 5-10 August.
2. Mesa, J. D., & Maki, K. J. (2018) "Numerical Investigation of Rectangular Flat Plate Slamming," *6th European Conference on Computational Mechanics (ECCM 6) 7th European Conference on Computational Fluid Dynamics (ECFD 7)*, Glasgow, UK.
3. Bradford G. Knight, and Kevin J. Maki (2018) "Body Force Propeller Model for Unsteady Surge Motion", *ASME 37th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2018)*, Madrid, Spain.
4. Grzegorz P. Filip, Wenzhe Xu, and Kevin J. Maki (2018) "Prediction of Extreme Wave Slamming Loads on a Fixed Platform", *ASME 37th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2018)*, Madrid, Spain.
5. Korobkin, A., Khabakhpasheva, T., Chen, Y., Maki, K.J. (2018) "Impact onto an ice floe", *Abstract submitted for the Eighth International Conference on Hydroelasticity in Marine Technology*.
6. P. He, G. Filip, J. R. R. A. Martins & K. J. Maki (2018) "Hull form hydrodynamic design using a discrete adjoint optimization method", *13th International Marine Design Conference*, Helsinki, Finland.
7. Tandon, S., Shinde, S., Maki, K., & Johnsen, E. (2018). "Near-Wake Flow Modulation by A Cube On A Backward-Facing Ramp," In *2018 Flow Control Conference AIAA Aviation Forum*, Atlanta, GA (p. 3526).
8. Shinde, S., Maki, K., & Johnsen, E. (2018). "Understanding the Dependence of Near-Wake Characteristics on the Cube Height in a Turbulent Boundary Layer," In *2018 Flow Control Conference AIAA Aviation Forum*, Atlanta, GA (p. 3863).
9. He, P., Mader, C. A., Martins, J., & Maki, K. (2018). "Aerothermal Optimization of Internal Cooling Passages Using a Discrete Adjoint Method," In *2018 Joint Thermophysics and Heat Transfer Conference AIAA Aviation Forum*, Atlanta, GA (p. 4080).
10. T.I. Khabakhpasheva, Yang Chen, A.A. Korobkin, K. Maki (2018) "Water impact near the edge of a floating ice sheet", *International Workshop of Water Waves and Floating Bodies*, Guidel-Plages, France.
11. Paul F. White, Robert F. Beck, Kevin J. Maki, and Dominic J. Piro (2018) "A Combined CFD/Potential Flow Simulation Method for Prediction of Hydrodynamic Maneuvering Forces", *International Workshop of Water Waves and Floating Bodies*, Guidel-Plages, France.
12. b Grzegorz Filip, Kevin Maki, Pete Bachant, Robert Lietz (2018) "Simulation of Flow Control Devices in Support of Vehicle Drag Reduction", *SAE Technical Paper 2018-01-0713*.
13. Jose D. Mesa and Kevin J. Maki (2017) "Numerical hydroelastic analysis of slamming for high speed vessels", *14th International Conference on Fast Sea Transportation (FAST 2017)*
14. Matthew Graham and Kevin Maki (2017) "Numerical Analysis of Local and Global Hydroelastic Response to Wetdeck Slamming Events on Multihull Vessels", *Numerical Towing Tank Symposium NuTTS 2017*, Wageningen, The Netherlands.

15. Bradford G. Knight, Robert Freda, Yin Lu Young, and Kevin Maki (2017) "Evaluation of Different Numerical and Analytical Strategies to Analyze a Ducted Marine Current Turbine", *Fifth International Symposium on Marine Propulsors*, VTT Technical Research Center of Finland Ltd., Helsinki, Finland.
16. White, P.F., Chen, Y., Maki, K.J. & Beck, R.F. (2017) "Velocity Decomposition Analysis of Free-Surface Flow", *International Workshop of Water Waves and Floating Bodies*, Dalian, China.
17. Maki, K.J., Ye, H.X., Khabakhpasheva, T.I. & Korobkin, A.A. (2017) "Impact of a wedge-shaped body with influence of broken ice", *International Workshop of Water Waves and Floating Bodies*, Dalian, China.
18. S. Shinde, K. Maki and E. Johnsen (2017). "Understanding the effect of cube size on the near wake characteristics in a turbulent boundary layer", *2017 AIAA Aviation and Aeronautics Forum and Exposition*, Denver, CO.
19. S. Tandon, S. Shinde, K. Maki and E. Johnsen (2017). "Flow Control Using Passive Vortex Generators", *2017 AIAA Aviation and Aeronautics Forum and Exposition*, Denver, CO.
20. S. Tandon, S. Shinde, K. Maki and E. Johnsen (2016). "Flow separation over a backward-facing ramp with and without a vortex generator", *2016 AIAA Aviation and Aeronautics Forum and Exposition*, Washington, DC.
21. S. Shinde, S. Tandon, K. Maki and E. Johnsen (2016). "Passive separation control on a backward facing ramp", *2016 AIAA Aviation and Aeronautics Forum and Exposition*, Washington, DC.
22. b Kevin J. Maki, Alexander Korobkin, Tatyana Khabakhpasheva, and Grzegorz, P. Filip (2016) "Modeling of Impact and Exit in Deep and Shallow Water" 31st Symposium on Naval Hydrodynamics, Monterey, California.
23. T.I. Khabakhpasheva, A.A. Korobkin, Kevin J. Maki, and Sopheak Seng (2016) "Water Entry and Exit with Large Displacements by Simplified Models", *International Workshop of Water Waves and Floating Bodies*, Plymouth, MI, USA.
24. David Skene, Luke Bennetts, Michael Meylan, Michael Wright*, and Kevin Maki (2016) "Comparison of Mathematical and CFD Models of Overwash of a Step" *International Workshop of Water Waves and Floating Bodies*, Plymouth, MI, USA.
25. Jonathan Duffett, Robert F. Beck, Xiao Zhang, Kevin J. Maki, J. N. Newman (2016) "Experimental and Numerical Study of Waves Amplified by a Submerged Plate" *International Workshop of Water Waves and Floating Bodies*, Plymouth, MI, USA
26. Jose Mesa, Dominic Piro, Dave Kring, Margaret Craig, Lauren Schambach, Kevin Maki. (2015) "A Comparison of Fully-Coupled Hydroelastic Simulation Methods to Predict Slam-Induced Whipping", *7th International Conference on Hydroelasticity in Marine Technology Split, Croatia, 16-19 September 2015*.
27. Yang Chen, K.J. Maki, and W.J. Rosemurgy "A Velocity Decomposition Approach for Unsteady External Flow", *ASME 34th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2015)*.
28. L.K. Alford and K.J. Maki "Effects of Third-Order Nonlinearities on the Fourier Representation of Deterministic Wave Trains", *ASME 34th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2015)*.

29. L.K. Alford and K.J. Maki "Generating Large Deterministic Water Waves for Numerical Simulation", MODSIM World 2015.
30. T.I. Khabakhpasheva, A.A. Korobkin, and Kevin J. Maki (2015) "A Linearized Exit Model for the Prediction of Forces on a Body Within the 2D+T Framework" *International Workshop of Water Waves and Floating Bodies*, Bristol, UK.
31. Marc O. Woolliscroft and Kevin J. Maki (2015) "A Linearized Free-Surface RANS Method for Unsteady Ship Maneuvering Problems" *International Workshop of Water Waves and Floating Bodies*, Bristol, UK.
32. Marc Woolliscroft and Kevin J. Maki (2014), "Simulations of Static and Dynamic Maneuvering Tests Using a Linearized URANS Method". *Workshop on Verification and Validation of Ship Manoeuvring Simulation Methods (SIMMAN 2014)*, Copenhagen, Denmark, December 7-10.
33. Grzegorz Filip, Dae-Hyun Kim, Sunil Sahu, Jan de Kat, and Kevin Maki (2014), "Bulbous Bow Retrofit of a Container Ship Using an Open-Source Computational Fluid Dynamics (CFD) Toolbox", *Transactions of the Society of Naval Architects and Marine Engineers*, vol 122.
34. William J. Rosemurgy, Kevin J. Maki, and Robert F. Beck (2014) "The Application of Velocity Decomposition to Fully-Submerged Free-Surface Problems" *International Workshop of Water Waves and Floating Bodies*, Osaka, Japan.
35. Korobkin, A.A., Khabakhpasheva, T.I., and Maki, K.J. (2014) "Water-exit Problem with Prescribed Motion of a Symmetric Body" *International Workshop of Water Waves and Floating Bodies*, Osaka, Japan.
36. Dominic Piro, Kevin J. Maki (2013) "Whipping Response of a Box Barge in Oblique Seas" *International Workshop of Water Waves and Floating Bodies*, l'Isle-sur-la-Sorgue, France.
37. William J. Rosemurgy, Kevin J. Maki, and Robert F. Beck (2013) "The Application of Velocity Decomposition to Airfoil Problems" *International Workshop of Water Waves and Floating Bodies*, l'Isle-sur-la-Sorgue, France.
38. Grzegorz P. Filip, Kevin J. Maki and Sung-Eun Kim (2012) "Critical evaluation of several LES and DES models for simulation of flow around a vertical surface-piercing cylinder" *Numerical Towing Tank Symposium NuTTS 2012*, Cortona, Italy.
39. Dominic Piro, Kevin J. Maki (2012) "Water Exit of a Wedge-Shaped Body" *International Workshop of Water Waves and Floating Bodies*, Copenhagen, Denmark.
40. Dominic Piro, Thomas C. Fu, and Kevin Maki "Joint High-Speed Sealift Model-Test Results", *31st International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2012)*.
41. Paolo Geremia, Kevin Maki, Gianpiero Lavini, and Harpo Genuzio (2012) "Hull design method combining an innovative flow solver coupled with efficient multivariate analysis and optimization strategies" *COMPIT '12, 11th International Conference on Computer Applications and Information Technology in the Maritime Industries*.
42. Kevin Maki, Ricardo Sbragio, Nickolas Vlahopoulos (2011) "Multi-discipline Design of a Wind Turbine" *ASME 2011 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE)*.

43. Dominic Piro and Kevin Maki (2011) "Hydroelastic Wedge Entry and Exit" *11th International Conference on Fast Sea Transportation (FAST 2011)*.
44. Brian J. Cuneo, David J. Singer and Kevin J. Maki (2011) "Exploring Boundary Optimum of Multi-Disciplinary Optimization using Fuzzy Constraints" *11th International Conference on Fast Sea Transportation (FAST 2011)*.
45. William J. Rosemurgy, Deborah O. Edmund, Kevin J. Maki, and Robert F. Beck "A Method for Resistance Prediction in the Design Environment" *11th International Conference on Fast Sea Transportation (FAST 2011)*.
46. W. Wu, M. M. Bernitsas, and K. J. Maki "RANS simulation vs. experimental measurements of flow induced motion of circular cylinder with passive turbulence control for $30,000 < \text{Re} < 120,000$ " *30th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2011)*.
47. Deborah O. Edmund, Kevin J. Maki, and Robert F. Beck "An improved viscous/inviscid velocity decomposition method" *International Workshop of Water Waves and Floating Bodies, Athens, Greece, 2011*.
48. Bruce J. Martin, Grzegorz P. Filip, Kevin J. Maki, Robert F. Beck, and Eric Hall (2011), "The Effects of Streamlined Rigging on Sailboat Performance", *20th Chesapeake Sailing Yacht Symposium*, Annapolis, Maryland, USA, March.
49. Sung-Eun Kim, Bong J. Rhee, Hua Shan, Joseph Gorski, Eric G. Paterson, and Kevin Maki (2010), "A Scalable Multiphase RANS Capability Based On Object-Oriented Programming and Its Applications to Ship Hydrodynamics". *Gothenburg 2010 A Workshop on CFD in Ship Hydrodynamics*, Gothenburg, Sweden, December 8-10.
50. †Kevin J. Maki, Piotr J. Bandyk, Robert F. Beck and Sung-Eun Kim (2010), "Frequency Dependence and Viscous Effects in Horizontal-Plane Motions", *Twenty-Eighth Symposium on Naval Hydrodynamics*, Pasadena, California, September 13-17.
51. †W. Belknap, C. Bassler, M. Hughes, P. Bandyk, K. Maki, D.H. Kim, R. Beck and A. Troesch (2010), "Comparisons of Body-Exact Force Computations in Large Amplitude Motion", *Twenty-Eighth Symposium on Naval Hydrodynamics*, Pasadena, California, September 13-17.
52. Kevin J. Maki, Donghee Lee, Dominic J. Piro, and Matthew Collette (2010), "Hydroelastic Impact of Stern Structure using CFD and FEA", *Grand Challenges in Simulation and Modeling*, Ottawa, Canada, July 12-14.
53. Brant R. Savander, Kevin J. Maki, and Jan Land* (2010), "The Effects of Deadrise and Deadrise Variation on Steady Planing Hull Performance", *Second Chesapeake Powerboat Symposium*, Annapolis, Maryland, March 19-20.
54. Kevin J. Maki, Lawrence J. Doctors, Riccardo Brogna, Chris McKesson, Andrea Di Mascio (2009), "Calm-water resistance prediction of a surface-effect ship", *RINA International ACV and Surface Effect Craft Conference*, London, England, November 17-18.
55. Oscar D. Tascon, Armin W. Troesch, Kevin J. Maki (2009), "Numerical computation of the hydrodynamic forces acting on a maneuvering planing hull via slender body theory – SBT and 2-D impact theory", *Tenth International Conference on Fast Sea Transportation*, Athens, Greece, October.

56. Maki, K.J., Doctors, L.J., Scher, R.M., Wilson, W.M., Rhee, S.H., Troesch, A.W., and Beck, R.F. (2008), "Conceptual Design and Hydrodynamic Analysis of a High-Speed Sealift Adjustable-Length Trimaran", *Transactions of the Society of Naval Architects and Marine Engineers*. Vol 116.
57. Maki, K.J. and Wilson, W.M. (2008), "Steady Drift Force Calculation on the Naval Destroyer Hull 5415". *Workshop on Verification and Validation of Ship Manoeuvring Simulation Methods (SIMMAN 2008)*, Copenhagen, Denmark, April 14-16.
58. Donghee Lee, Kevin Maki, Robert Wilson, Armin Troesch, and Nickolas Vlahopoulos (2008), "Dynamic response of a marine vessel due to wave-induced slamming", *International Symposium on Vibro-Impact Dynamics of Ocean Systems and Related Problems*, Troy, Michigan, October 2-3.
59. Paik, K.-J., Choi, H., Maki, K.J., Vlahopoulos, N., Carrica, P., Troesch, A.W. (2008), "CFD-Based Method for Structural Loads on Surface Ships", *Twenty-Seventh Symposium on Naval Hydrodynamics*, Seoul, Korea, October 5-10.
60. Alford, L.K., Khalid, M.S., Kim, D-H., Maki, K.J., Troesch, A.W. (2007), "A Methodology for Creating Ship Design Responses". *The Tenth International Symposium on Practical Design of Ships and Other Floating Structures PRADS 2007*, Houston, Texas, September 30-October 5.
61. Maki, Kevin J., Doctors, Lawrence J., Beck, Robert F. (2007), "On the Exit Angle of the Flow behind a Transom Stern". *Ninth International Conference on Numerical Ship Hydrodynamics*, Ann Arbor, Michigan, USA, August.
62. Maki, K.J., Doctors, L.J., Rhee, S.H., Wilson, W.M., Beck, R.F., and Troesch, A.W. (2007), "Resistance Prediction of a High-Speed Sealift Trimaran". *Ninth International Conference on Numerical Ship Hydrodynamics*, Ann Arbor, Michigan, USA, August.
63. Maki, K., Iafrati, A., Rhee, S., Beck, R., Troesch, A. (2006), "The Transom Stern Modeled as a Backward Facing Step". *Twenty-Sixth Symposium on Naval Hydrodynamics*, Rome, Italy, September 17-22.
64. Maki, K.J., Doctors, L.J., Beck, R.F., Troesch, A.W. (2005), "Transom-Stern Flow for High-Speed Craft". *Eighth International Conference on Fast Sea Transportation FAST 2005*, Saint Petersburg, Russia, June.
65. Maki, K.J., Beck, R.F. and Troesch, A.W. (2005), "Experimental Validation of Numerically Simulated Unsteady Flow". *Twentieth International Workshop on Water Waves and Floating Bodies*, Longyearbyen, Spitsbergen (Norway), May.
66. Maki K.J., Troesch A.W., Beck R.F. (2004), "Qualitative Investigation of Transom Stern Flow Ventilation". *Nineteenth International Workshop on Water Waves and Floating Bodies*, Cortona, Italy, April.

Refereed conference summaries or abstracts

1. Paolo Geremia, Kevin Maki, and Andrew Jackson (2017) "Advanced Seakeeping Validation and Self-Propulsion Modeling using Helyx-Ecomarine", *Twelfth OpenFOAM Workshop*, Exeter, United Kingdom.
2. Jonmarcos Diaz, Kevin Maki, Nickolas Vlahopoulos (2016) "Structural Vibration of an Elastically Supported Plate due to Excitation of a Turbulent Boundary Layer" *Abstract for the 2016 Fall*

Acoustical Society of America Meeting Special Session "Fluid Flow Induced Vibration and Noise"
Honolulu, HI, November 28-December 2.

3. K.J. Maki, M. Graham, J. Mesa, G.F. Filip (2016) "A Fluid-Structure Interaction Algorithm for Ship Hydroelasticity", *Eleventh OpenFOAM Workshop*, Guimarães, Portugal.
4. C.A. Mader, K.J. Maki, J.R.R.A. Martins (2015) "Shape Optimization with OpenFOAM", *Tenth OpenFOAM Workshop*, Ann Arbor, MI, USA.
5. Paolo Geremia, Eugene de Villiers, and Kevin J. Maki (2015) "Flow Resistance and Seakeeping Advanced Optimization of Ship Hull Using HELYX-Ecomarine", *Tenth OpenFOAM Workshop*, Ann Arbor, MI, USA.
6. Francisco Montero, Yin Lu Young, Kevin Maki (2014) "Time-Domain Simulations of the Dynamic Response of an Active Material Plate in Single Phase Flow" *17th U.S. National Congress on Theoretical & Applied Mechanics, Mini-symposium on Modeling and Optimization of Fluid-Structure Interaction Problems*. East Lansing, Michigan.
7. Alexander Korobkin, Kevin J. Maki, Javier Rodriguez-Rodriguez, Tatyana Khabakhpasheva (2014) "Oscillations of an elastically supported body in partial contact with water" *17th U.S. National Congress on Theoretical & Applied Mechanics, Mini-symposium on Modeling and Optimization of Fluid-Structure Interaction Problems*. East Lansing, Michigan.
8. Paolo Geremia, Eugene de Villiers, Kevin J. Maki (2014), "ECOMARINE: an innovative fast solver for ship hull optimization". *Ninth OpenFOAM Workshop*, Zagreb, Croatia, June 23-26.
9. Paolo Geremia and Kevin Maki "Coupling efficient multivariate analysis and optimization strategies with an innovative flow solver for hull hydrodynamics", *modeFRONTIER 2012 Users Meeting*, Trieste, Italy, May 21, 2012.
10. Marc Woolliscroft and Kevin Maki "Verification and Validation of an Unsteady RANS Solver based on the OpenFOAM Opensource CFD Library", *participation in Verification and Validation Workshop at the 31st International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2012)*.
11. Paolo Geremia, Kevin J. Maki, Gianpiero Lavini, and Harpo Genuzio (2012), "Coupling efficient multivariate analysis and optimization strategies with an innovative flow solver for hull hydrodynamics". *Seventh OpenFOAM Workshop*, Darmstadt, Germany, June 25-28.
12. Grzegorz Filip, Sung-Eun Kim, and Kevin J. Maki (2012) "Critical evaluation of several LES and DES models for simulation of flow around the DARPA SUBOFF geometry". *24th International Conference on Parallel Computational Fluid Dynamics 2012*, Atlanta, GA, May.
13. W. J. Rosemurgy and K.J. Maki (2011), "A Hybrid Boundary Element/RANS Approach to Steady Flows in Naval Hydrodynamics". *Sixth OpenFOAM Workshop*, State College, PA, June 13-16.
14. K.J. Maki, D.J. Piro, D-H Lee (2010), "Fluid-structure interaction during ship slamming". *Fifth OpenFOAM Workshop*, Gothenburg, Sweden, June 21-24.
15. K.J. Maki and W.J. Rosemurgy (2009), "Thin-Ship Theory of Wave Resistance on Finite-Volume Grids". *Fourth OpenFOAM Workshop*, Montreal, Canada, June 1-4.
16. Maki, K.J. and Paterson, E.G. (2008), "Simulation of Floating Bodies in Waves using VOF RANS and Dynamic Meshing". *Third OpenFOAM Workshop*, Milan, Italy, July 10-11.

Chapters in books

1. Lee, D., Maki, K., Wilson, R., Troesch, A. & Vlahopoulos, N. (2009) "Dynamic response of a marine vessel due to wave-induced slamming", *Lecture Notes in Applied and Computational Mechanics*. Vol. 44, p. 161-172 12 p. (Lecture Notes in Applied and Computational Mechanics; vol. 44) (presentation given at *International Symposium on Vibro-Impact Dynamics of Ocean Systems and Related Problems*)

Government, university, or industrial reports (non-refereed)

1. Grzegorz Filip, Wenzhe Xu and Kevin Maki (2017), "URANS Predictions of Resistance and Motions of the KCS in Head Waves", Departmental Report No. 355, The University of Michigan, Department of Naval Architecture and Marine Engineering.
2. Grzegorz Filip and Kevin Maki (2015), "Evaluation of Advanced Turbulence Models for High-Reynolds Number External Flow", Departmental Report No. 354, The University of Michigan, Department of Naval Architecture and Marine Engineering.
3. Piro, D.J. and Maki, K.J. (2013), "An adaptive interface compression method for water entry and exit", Departmental Report No. 350, The University of Michigan, Department of Naval Architecture and Marine Engineering.
4. Maki, K.J. (2004), "Unsteady transom stern flows through a level-set approach", *INSEAN* Technical Report.

Invited presentations (*Invited keynote presentations at conferences or symposia, or seminar series at peer institutions*)

1. "Prediction of Ship Structural Response when Operating in Extreme Seas", University of California Berkeley, Berkeley, CA, March 9, 2018.
2. "Nonlinear numerical modeling of impact loads of ship sections and floating ice", Isaac Newton Institute for Mathematical Sciences at University of Cambridge, Cambridge, United Kingdom, November 7, 2017.
3. "Recent Research on Numerical Algorithms for Unsteady Ship Hydrodynamics", University of Trieste, Trieste, Italy, July 4, 2017.
4. "Overview of research in computational ship hydrodynamics based on OpenFOAM", 2016 North American OpenFOAM User Conference, Detroit, Michigan, Dec 1, 2016.
5. "A Numerical Approach for the Analysis of Slamming and Wave Bending of Ships", CNR-INSEAN, Rome, Italy, June 24, 2016.
6. "A Numerical Algorithm for Slamming and Wave Bending of Ships", University of Genoa, Genoa, Italy, June 16, 2016.
7. "A Computational Method for Fluid-Structure Interaction of Ships and Waves", Department of Mathematics, The University of East Anglia, Norwich, UK, February 4, 2016.

8. "Use of OpenFOAM at University of Michigan with focus on FSI and LES", ESI OpenFOAM Seminar, Southfield, MI, October 16, 2012.
9. "Accuracy vs. Efficiency: The Quest of Code Validation", Experts Meeting on Computer Code Validation for Offshore Wind Systems Modeling, Boulder, CO, May 16, 2012.
10. "A Velocity Decomposition Approach for Steady Free-Surface Flow", The University of Michigan, Ann Arbor, MI, June 6, 2011.
11. "A Velocity Decomposition Approach for Calm-Water Resistance Prediction", United States Naval Academy, Annapolis, Maryland, May 18, 2011.
12. "A Velocity Decomposition Approach for Steady Free-Surface Flows", The Massachusetts Institute of Technology, Cambridge, Massachusetts, May 3, 2011.
13. "The use of Velocity Decomposition for Calm-Water Resistance Prediction", given to the students of the 2N Program, The Massachusetts Institute of Technology, Cambridge, Massachusetts, May 4, 2011.
14. "A Body-Force Model for Propeller-Hull Interaction", *INSEAN* – The Italian Ship Model Basin, Rome Italy, July 2010.
15. "Hydroelastic impact of a wedge-shaped body", *INSEAN* – The Italian Ship Model Basin, Rome Italy, June 2010.
16. "Framework for Body-Force Propeller Modeling with RANS", Naval Surface Warfare Center Carderock Division, West Bethesda MD, June 2010.
17. "Numerical Prediction of Calm-Water Resistance with Dynamic Sinkage and Trim", Naval Surface Warfare Center Carderock Division, West Bethesda MD, July 2009.
18. "Fluid-Structure Interaction of Surface Vessels", The Pennsylvania State University Applied Research Laboratory, State College PA, July 2009.
19. "Simulation of Floating Bodies in Waves using VOF RANS and Dynamic Meshing", *INSEAN* – The Italian Ship Model Basin, Rome Italy, three lectures given in July 2008.
20. "Sailing Yacht Performance Analysis", *INSEAN* – The Italian Ship Model Basin, Rome Italy, three lectures given in April and May 2008.
21. "Hydrodynamic Analysis for the Design of a High-Speed Sealift Trimaran", Department of Aerospace and Ocean Engineering, Virginia Polytechnic and State University, Blacksburg VA, September 2007.
22. "Resistance Predictions for a High-Speed Sealift Trimaran", Naval Surface Warfare Center Carderock Division, West Bethesda MD, July 2007.

Other

Poster Awards

1. Marc Woolliscroft and Kevin J. Maki (2014), "A Simplified Theory for Efficient Simulation of Ship Maneuvering", *MICDE Research Computing Symposium*, Ann Arbor, MI, November 6. (*selected for "Honorable Mention" by people's choice.*)

Presentations

1. "Computational Fluid Dynamics for Ship Performance Prediction", Society of Physics Students (SPS), The University of Michigan, October 2010.

High-Performance Computing Grants

1. XSEDE Grant for 2,000,000 CPU-hours on the TACC Dell Linux Cluster (Stampede) for the research project titled "Separation control of flow over a backward-facing ramp", October 2016-September 2017.
2. XSEDE Grant for 1,250,000 CPU-hours on the TACC Dell Linux Cluster (Stampede) for the research project titled "Numerical study of friction drag reduction through air-layer injection", April 2014-March 2015.
3. XSEDE Grant for 700,000 CPU-hours on the TACC Dell PowerEdge Linux Cluster (Stampede) for the research project titled "Numerical Study of Wave Breaking", April 2013-March 2014.
4. High-Performance Computing (HPC) Grant for 100,000 CPU-hours from the Consorzio interuniversitario per le Applicazioni di Supercalcolo Per Universita` e Ricerca *CASPUR*, 2012
5. High-Performance Computing (HPC) Grant for 50,000 CPU-hours from the Consorzio interuniversitario per le Applicazioni di Supercalcolo Per Universita` e Ricerca *CASPUR*, 2010
6. HPC Grant for 30,000 CPU-hours from the Consorzio interuniversitario per le Applicazioni di Supercalcolo Per Universita` e Ricerca *CASPUR*, 2009

Service

Major committee assignments in the Department, College, and/or University

Department - (*Name of committee, dates, member or chair status*)

1. Faculty Search Committee for NA&ME Department, 2017-present. Chair
2. Faculty Search Committee for NA&ME Department, 2016-2017. Member
3. Committee for NA&ME Department Curriculum Review, Winter 2015. Member
4. Committee for the NA&ME Department mathematics qualifying exam. Summer 2013-present. Chair.
5. Committee for the NA&ME Department mathematics qualifying exam. 2012-2013. Member.

6. Committee for the NA&ME Department hydrodynamic written qualifying exam. 2007-2011. Member.

College - *(Name of committee, dates, member or chair status)*

1. College of Engineering New Faculty Orientation Research Program Panel, 2017, 2018, Panelist.
2. Organizing committee for NextProf 2016, Member.
3. Faculty Judge for the Engineering Graduate Symposium, 2015.
4. College of Engineering Research Advisory Committee, September 2011-2014, January 2017-present. Member.
5. College of Engineering Master's Degree Fellowship Selection Committee, Winter 2013, Winter 2014, Winter 2016, Member.
6. College Representative for the seminar and interview of prospective faculty member in the Department of Industrial and Operations Engineering, February 2013 and January 2015.
7. Committee for the College of Engineering Richard and Eleanor Towner Prize for Outstanding Ph.D. Research Award, Fall 2013. Member.

University - *(Name of committee, dates, member or chair status)*

1. Faculty Marshal, Winter Commencement 2015.
2. Summer Research Opportunity Program (SROP) 2013. Faculty Representative for the College of Engineering.
3. Instructor for the workshop on Responsible Conduct of Research and Scholarship given to graduate students and postdoctoral researchers, 2014, 2016.
4. University of Michigan Sailing Team Faculty Advisor. 2007-present.
5. University of Michigan UM::Autonomy Faculty Advisor. 2018-present.

Service to government or professional organizations, and service on review board/study panels
(Name of committee, chair or member, editorships etc.; dates)

1. Guest Editor for a Special issue on Applications of Marine Computational Fluid Dynamics, to be published in Ocean Engineering, 2017.
2. Co-organizer for the 1st Symposium on Marine Hydrodynamics, ASME 2016 Fluids Engineering Division Summer Meeting FEDSM, July 2016.
3. Co-organizer for the 31st International Workshop on Water Waves and Floating Bodies, Ann Arbor, April 3-6 2016. 80 participants.
4. Lead organizer for the 10th OpenFOAM Workshop, Ann Arbor, June 29-July 2, 2015. 140 participants.
5. Member of the Organizing Committee for the OpenFOAM Workshop. June 2014-present.

6. Member of the Scientific Committee and Session Chair for the International Conference on Ocean, Offshore and Arctic Engineering, 2009-2013, 2015.
7. Member of the technical committee for the Numerical Towing Tank Symposium. 2012-present.
8. Proposal Review for Technology Foundation STW, The Netherlands.
9. Member of the Scientific Committee and Session Chair for the 11th International Conference on Fast Sea Transportation, *FAST 2011*
10. Session Chair for the 28th Symposium on Naval Hydrodynamics, 2010.