Program for the
9th International Conference on Numerical Ship Hydrodynamics

SUNDAY, AUGUST 5, 2007

6:00-8:00 RECEPTION AT THE MARINE HYDRODYNAMICS LAB, 128 West Hall

MONDAY, AUGUST 6, 2007

8:00-8:30 CONTINENTAL BREAKFAST, Rackham Assembly Hall

8:30-8:45 INTRODUCTION, Rackham Amphitheatre

8:45-10:15 SESSION 1

Session 1A, Rackham Amphitheatre – Optimization I
Chair: Dr. Ulderico Bulgarelli, INSEAN

Y. Tahara, E. F. Campana, D. Peri, A. Pinto, M. Kandasamy and F. Stern, **Global Optimization and Variable Fidelity Strategies in the Single and Multiobjective Optimal Design of Fast Multihull Ships**

J. Kuhn, K. Chevalier, E. Schlageter, C. Scragg and D. Wyatt, **The Use of Linear Programming and Basis Functions for Hull-Form Optimization**

L. Martinelli and A. Jameson, **An Adjoint Method for Design Optimization of Ship Hulls**

Session 1B, West Conference Room – Overset Grid Methods
Chair: Dr. Joseph Gorski, NSWC-CD

L. P. Mulvihill and C. Yang, **Numerical Simulation of Flow over Fully Appended ONR Body-1 with Overset Grid Scheme**

R. Noack, **Enabling Large Amplitude and Relative Motions Through Overlapping Grids**

J. Huang, P. M. Carrica, S. M. Mousaviraad and F. Stern, **Semi-Coupled Air/Water Immersed Boundary Approach in Curvilinear Dynamic Overset Grids with Application to Environmental Effects in Ship Hydrodynamics**

10:15-10:45 BREAK, Rackham Assembly Hall

10:45-12:15 SESSION 2

Session 2A, Rackham Amphitheatre – Optimization II
Chair: Professor Pierre Ferrant, Centrale Nantes

M. Kotinis and M. Parsons, **Numerical Investigation of the Flow at the Stern of a Ballast-Free Bulk Carrier Model**

E. F. Campana, G. Fasano , D. Peri and A. Pinto, **Nonlinear Programming Approaches in the Multidisciplinary Design Optimization of a Sailing Yacht Keel Fin**

Y.-T. Lee, V. Ahuja, A. Hosangadi and M. P. Ebert, **Optimal Shape for Forces and Moments on a Multi-Element Hydrofoil**

Session 2B, West Conference Room – Cartesian Grid Methods
Chair: Dr. David Whitfield, University of Tennessee at Chattanooga

D. G. Dommermuth, T. T. O'Shea, D. C. Wyatt, T. Ratcliffe, G. D. Weymouth, K. L. Hendrikson, D. K. P. Yue, M. Sussman, P. Adams and M. Valenciano, **An Application of Cartesian-Grid and Volume-of-Fluid Methods to Numerical Ship Hydrodynamics**

J. Yang, N. Sakamoto, Z. Wang, P. Carrica and F. Stern, **Two Phase Level-Set/Immersed-Boundary Cartesian Grid Method for Ship Hydrodynamics**

C. Hu and M. Kashiwagi, **Numerical and Experimental Studies on Three-Dimensional Water on Deck with a Modified Wigley Model**

12:15-1:30 LUNCH, Rackham Assembly Hall

1:30-3:00 SESSION 3

Session 3A, Rackham Amphitheatre – Maneuvering I
Chair: Professor Key Pyo Rhee, Seoul National University

T. Xing, J. Shao and F. Stern, **BKW- RS-DES of Unsteady Vortical Flow for KVLCC2 at Large Drift Angles**

A. Di Mascio, R. Broglia and R. Muscari, **Numerical Simulations of Viscous Flow Around a Fully Appended Hull with Enforced Motion**

R.V. Wilson, D. S. Nichols, B. Mitchell, S. L. Karman, Jr., V. C. Betro, D. G. Hyams, K. Sreenivas, L. K. Taylor, W. R. Briley and D. L. Whitfield, **Simulation of a Surface Combatant with Dynamic Ship Maneuvers**

Session 3B, West Conference Room – Free Surface Problems
Chair: Dr. Alessandro Iafrati, INSEAN

M. F. Trujillo, C.-T. Hsiao, J.-K. Choi, E. G. Paterson, G. L. Chahine, and L. J. Peltier, **Numerical and Experimental Study of a Horizontal Jet Below a Free Surface**

M. Sueyoshi, H. Kihara and M. Kashiwagi, **A Hybrid Technique Using Particle and Boundary-Element Methods for Wave-Body Interaction Problems**

S.-E. Kim and D. Cokljat**, Evaluation of a URANS-LES Hybrid Approach for Turbulent Free-Surface Flows Around Surface-Piercing Bodies**

3:00-3:30 BREAK, Rackham Assembly Hall

3:30-5:00 SESSION 4

Session 4A, Rackham Amphitheatre – Maneuvering II
Chair: Dr. Douglas Dommermuth, SAIC

D. E. Hess, W. E. Faller, L. Minnick, and T. C. Fu, **Maneuvering Simulation of Sea Fighter Using A Fast Nonlinear Time Domain Technique**

R. E. Bensow and C. Fureby, **Large Eddy Simulation of Viscous Flow around a Submarine During Maneuver**

Y. Hong, **Computation of Forces and Moments of Undersea Vehicles with Non-Body-Of-Revolution Hull**

Session 4B, West Conference Room – Water Waves
Chair: Dr. Shin Hyung Rhee, Seoul National University

H. G. Sung, K. Y. Hong, J. H. Kyoung and S. Y. Hong, **The Spectral Element Method Applied to the Viscous Free Surface Flows**

O. Nwogu, **Numerical Modeling of Waves Generated by High-Speed Vessels in Shallow Water with a Coupled Boussinesq-Panel Method**

B. W. Nam, D. Y. Yoo, J. Kyoung, S. Y. Hong, K. P. Rhee, S. I. Yang and K. J. Bai, **Numerical Computations for a Zero Transmission of an Incident Wave in a Three Dimensional Channel**

TUESDAY, AUGUST 7, 2007

8:00-8:30 CONTINENTAL BREAKFAST, Rackham Assembly Hall

8:30-10:00 SESSION 5

Session 5A, Rackham Amphitheatre – Sloshing
Chair: Dr. Emilio Campana, INSEAN

G. Colicchio, A. Colagrossi, C. Lugni, M. Brocchini and O. M. Faltinsen, **Challenges on the Numerical Investigation of the Flip-Through**

J. Kim, Y. Kim, I.-R. Park, and S. H. Van, **Comparisons of Numerical Methods Applied to Violent Sloshing Flows**

G. Oger, J. M. Rousset, D. Le Touze, B. Alessandrini and P. Ferrant, **SPH simulations of 3-D slamming problems**

Session 5B, West Conference Room – Ship/Ship Interactions
Chair: Dr. Patrick Purtell, Office of Naval Research

H. J. de Koning Gans, R. Huijsmans and J .A.Pinkster, **A Method to Predict Forces on Passing Ships under Drift**

S. Zhang, K. Weems and W.-M. Lin, **Numerical Simulation and Validation of Ship-Ship Interactions in Waves**

G. L. Chahine, C.-T. Hsiao, J.-K. Choi and M. Tanguay, **Numerical Simulation of the Hydrodynamic Behavior of Multiple Vessels in a Harbor**

10:00-10:30 BREAK, Rackham Assembly Hall

10:30-12:00 SESSION 6

Session 6A, Rackham Amphitheatre – Slamming and Impact Problems
Chair: Professor Luigi Martinelli, Princeton University

Y. Kim, Y. Kim, Y. Liu and D. K. P. Yue, **On the Water-Entry Impact Problem of Asymmetric Bodies**

A. Iafrati, **Free Surface Flow Generated by the Water Impact of a Flat Plate**

S. Malenica and A. A. Korobkin, **Some Aspects of Slamming Calculations in Seakeeping**

Session 6B, West Conference Room – Ship Resistance
Chair: Dr. Thomas Fu, NSWC-CD

S. Bhushan, T. Xing, P. Carrica and F. Stern, **Model- and Full-Scale URANS/DES Simulations for Athena R/V Resistance, Powering, and Motions**

M. P. Wood, L. M. González, J. Izquierdo, A. Sarasquete and L. Pérez Rojas, **RANSE with Free Surface Computations Around Fixed DTMB 5415 Model and other Baliño's Fishing Vessels.**

E. Jacquin, P.-E. Guillerm and B. Alessandrini, **Form Drag Resistance to Ship Power Optimization Using CFD**

12:00-1:30 LUNCH, Rackham Assembly Hall

2:45-11:00 Ford Rouge Tour and Banquet at the Henry Ford Museum

WEDNESDAY, AUGUST 8, 2007

8:00-8:30 CONTINENTAL BREAKFAST, Rackham Assembly Hall

8:30-10:00 SESSION 7

Session 7A, Rackham Amphitheatre – Extreme Motions
Chair: Professor Masashi Kashiwagi, RIAM, Kyushu University

S. H. S. Hosseini, I.-R. Park, F. Stern, A. Olivieri, E. F. Campana and A. Francescutto, **Complementary URANS CFD and EFD for Validation Extreme Motions Predictions**

J. H. Kyoung, S. Y. Hong, K. J. Bai and J. W. Kim, **Finite Element Computations on Elastic Vertical Cylinder in Extreme Wave Condition**

C. Yang, H. Lu, R. Lohner , X. Liang and J. Yang, **An Unstructured-Grid Based VOF Method for Ship Motions Induced by Extreme Waves**

Session 7B, West Conference Room – High Speed Vessels
Chair: Dr. Hoyt Raven, MARIN

Y. Sato, K. Uzawa and H. Miyata, **Validation of Motion Prediction Method for Trimaran Vessels**

K. J. Maki, L. J. Doctors, S. H. Rhee, W. M. Wilson, R. F.Beck and A. W. Troesch, **Resistance Prediction for a High-Speed Sealift Trimaran**

B. Milewski, B. Connell, J. Wilson and D. Kring, **Dynamics of Air Cushion Vehicles Operating in a Seaway**

10:00-10:30 BREAK, Rackham Assembly Hall

10:30-12:00 SESSION 8

Session 8A, Rackham Amphitheatre – Radiation/Diffraction Problems
Chair: Professor June Bai, MOERI

P. Wellens, J. A. Pinkster, R. H. M. Huijsmans and A. E. P. Veldman, **3D Diffraction Theory Based Boundary Conditions**

R. Luquet, G. Ducrozet, L. Gentaz, P. Ferrant and B. Alessandrini, **Applications of the SWENSE Method to Seakeeping Simulations in Irregular Waves**

M. H. Nguyen, M. Ba, S. Huberson and M. Guilbaud**, Hydrodynamic Flow Calculations Around Surface Piercing Bodies in the Frequency Domain**

Session 8B, West Conference Room – Transom Sterns
Chair: Professor Armin Troesch, University of Michigan

K. J. Maki, L. J. Doctors and R. F. Beck, **On the Profile of the Flow behind a Transom Stern**

B. Starke, H. Raven and A. van der Ploeg, **Computation of Transom-Stern Flows Using a Steady Free-Surface Fitting RANS Method**

L. Russell, T. Ratcliffe, T. Fu, A. Fullerton, J. Grimsley, **A Comprehensive Set of Code Validation Data for Planing Boat Forces in Calm Water and Regular Waves**

12:00-1:30 LUNCH, Rackham Assembly Hall

1:30-3:00 SESSION 9

Session 9A, Rackham Amphitheatre – Nonlinear Ship Motions
Chair: Dr. Woei-Min Lin, Science Applications Internal Corporation

T. Mikami and M. Kashiwagi, **A Time-Domain Nonlinear Strip Method with Whipping Taken into Account**

W. Qiu and H. Peng, **Computation of Large Amplitude Ship Motion in the Time Domain**

X. Zhang, P. Bandyk and R. F. Beck, **Large Amplitude Body Motion Computations in the Time-Domain**

Session 9B, West Conference Room – Propulsion
Chair: Professor Spyros Kinnas, University of Texas, Austin

S. J. P. Watson and P. W. Bull, **Modelling of Two-Dimensional Unsteady Effects Within Marine Propulsion**

T. Hino, H. Kobayashi and H. Takeshi, **CFD-Based Design of Ship Hull Forms with Azimuth Propulsion System**

K. S. Kim, J. Kim, I. R. Park, G. D. Kim and S. H. Van, **RANS analysis for Hull-Propeller-Rudder Interaction of A Commercial Ship by Using the Overset Grid Scheme**

3:00-3:30 BREAK, Rackham Assembly Hall

3:30-5:00 SESSION 10

Session 10A, Rackham Amphitheatre – Sea Fighter
Chair: Professor Lawrence Doctors, The University of New South Wales

T.C. Fu, A.M. Fullerton and L. Minnick, **Characterization of Sea Fighter, FSF-1, Wave Slam Events**

W.-M. Lin, S. Zhang, K. Weems, P. Jones, M. Meinhold, B. Metcalf and A. M. Powers, **Numerical Simulation and Validation Study of Wetdeck Slamming on High Speed Catamaran**

E. J. Terrill and G. Taylor, **Measuring Waves at Sea for the Validation of Wave Generation and Seakeeping Codes**

Session 10B, West Conference Room – Cavitation
Chair: Dr. Ki-Han Kim, Office of Naval Research

M. P. Kinzel, J. W. Lindau, R. F. Kunz, J. Peltier, E. Paterson and R. W. Noack, **Computational Investigations of Air Entrainment, Hysteresis, and Loading for Large-Scale, Buoyant Cavities**

E. Amromin, **Design of Bodies with Drag Reduction by Partial Cavitation as an Inverse Ill-Posed Problem for Velocity Potential**

S. A. Kinnas, H. Lee, T. J. Michael and H.Sun, **Prediction of Cavitating Waterjet Propulsor Performance Using a Boundary Element Method**