# International Conference on Computational and Experimental Marine Hydrodynamics (MARHY 2014)

Advances in Computational and Experimental Marine Hydrodynamics 2014 (ACEMH 2014)

Chennai, India 3-4 December 2014

**Editors**:

P. Krishmankutty R. Sharma

V. Anantha Subramanian S. K. Bhattacharyya

ISBN: 978-1-5108-1171-3

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2014) by The Royal Institution of Naval Architects All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact The Royal Institution of Naval Architects] at the address below.

The Royal Institution of Naval Architects 8-9 Northumberland Street London, WC2N 5DA United Kingdom

Phone: 44 207 235 4622 Fax: 44 207 259 5912

publications@rina.org.uk

#### Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400 Fax: 845-758-2634 Email: curran@proceedings.com Web: www.proceedings.com

#### Contents

Page number

Preface	i
Publication details	ii
Acknowledgements	iv

## Keynote talks

Keynote talk 1: Strategic R&D Priorities with Particular Reference to Ship-Water Interactions

Dr. Fai Cheng, Head of Research and Technology, Lloyd's Register Marine, London E-mail: Fai.Cheng@lr.org

Keynote talk 2: From Eco-ships to Eco-shipping and Beyond Dr. M. Abdul Rahim, Managing Director (Europe and Africa), Nippon KaijiKyokai (ClassNK) E-mail: rahim@classnk.or.jp

### **Research papers**

1	Title: Effect of Structural Deformation on Performance of Different Marine Propellers Authors: H.N. Das, Ch. Suryanarayana, B. Tejo Nagalakshmi, P. VeerabhadraRao.	1-12
2	Title: CFD Simulation Of Ship Maneuvering Authors: K. Ravindra Babu, V.F. Saji, H.N. Das.	13-18
3	Title: Spatial-Spectral Hamiltonian Boussinesq Wave Simulations Authors: E. van Groesen, R Kurnia.	19-24
4	Title: Validation Studies for the Scaling of Ducted Propeller Open Water Characteristics Authors: A. Bhattacharyya, V. Krasilnikov.	25-34
5	Title: Hydrodynamic Analysis Of Podded Propeller Using CFD Authors: Nishant Verma, Om Prakash Sha.	35-44
6	Title: Predicting the Impact of Hull Roughness on the Frictional Resistance of Ships Authors: PA Stenson, B Kidd, HL Chen, AA Finnie, R Ramsden	45-52
7	Title: Numerical Wave Tank Studies for Floating Wind Turbines Authors: Shivaji Ganesan, Debabrata Sen.	53-62
8	Title: Sea Trials of a Water Jet Propelled High Speed Craft Authors: K.O.S.R. Ravisekhar Radhakrishna, R. Panneer Selvam.	63-70
9	Title: Biomimetically Inspired Autonomous Ocean Observation System –AquaBot Authors: Prasad Punna, Jagadeesh Kadiyam, D.Gowthaman, R.Venkatesan.	72-80
10	Title: Numerical Study of Self-Propulsion and Maneuvering Characteristics of 90t AHTS Vessel Authors: Praveen Kachhawaha, P Krishnankutty.	81-86
11	Title: Investigation on Effect of Skew on Natural Frequency for a Marine Propeller Blade in Water Using F.E.M	87-94
	Authors: Md. Ayaz J. Khan, Sanjay D. Pohekar, Ravindra B. Ingle	

12	Title: Effect of Environmental Loads on the Maneuverability of a Tanker Authors: Deepti B. Poojari,Saj A.V, Sheeja Janardhanan, A R Kar.	95-102
13	Title: Heave Damping Characteristics of a Buoy Form Spar by CFD Simulation and Experimental Studies Authors: N. senthilkumar, S. Nallayarasu.	103-108
14	Title: CFD simulation and experimental studies on frequency and amplitude dependency of heave damping of Spar hull with and without heave plate Authors: J. Mahesh, S. Nallayarasu, S. K. Bhattacharyya.	109-118
15	Title: Reduction in Ship's Resistance by Dimples on the Hull? A Complementary CFD Investigation Authors: S. C. Sindagi, Md. A. J. Khan, A.S. Shinde.	119-124
16	Title: Hydrodynamic Analysis Of Flapping Foils For Near Surface Vehicles Authors: P.Ananthakrishnan.	126-134
17	Title: Application of Direct Hydrodynamic Loads in Structural Analysis Authors: Yogendra Parihar, S. K. Satsangi, A. R. Kar.	136-142
18	Title: Ship scale CFD self-propulsion simulation and its direct comparison with sea trials results Authors: Dmitriy Ponkratov, ConstantinosZegos.	143-150
19	Title: Wake Estimation: A Comparative Study Between Different Solvers Authors: Jai Ram Saripilli, Prasada Naidu Dabbi, Ram Kumar , Sharad S Dhavalikar, Apurba R Kar.	151-156
20	Title: Experimental and CFD Simulation of Roll Motion of Ship with Bilge Keel Authors: Irkal Mohsin A.R., S. Nallayarasu , S.K. Bhattacharya.	157-166
21	Title: Pitch and Heave Control of Swath using Passive Fins Authors: Azaruddin Momin, V. Anantha Subramanian.	166-170
22	Title: Numerical Evaluation of Sloshing Pressure in a Rectangular Tank Fitted in a Barge Subjected to Regular Wave Excitation Authors: Jermie J Stephen, S.A Sannasiraj, V Sundar.	172-180
23	Title: Numerical Investigation of Ship Airwake over Helodeck for Different Configurations of Hangar Shapes of a Generic Frigate Authors: B Praveen, RVijayakumar, S N Singh, V Seshadri.	181-192
24	Title: CFD Analysis for the Configuration of the Hydrodynamic Depressor Authors: Senthil Prakash M N, Jithin P N.	193-198
25	Title: Numerical & Experimental Investigation on Semi-submersible Platform for Offshore Desalination Plant Authors: Ashwani Vishwanath, Purnima Jalihal	200-208
26	Title: Behaviour Of Ship Under Sloshing Authors: Abhijeet Sajjan, A.P.Shashikala.	210-218
27	Title: Estimation of Submarine Hydrodynamic Coefficients from Sea Trials Data using EKF Authors: Amit Ray, Debabrata Sen.	219-230
28	Title: Assessment of Slamming Dynamics on High Speed Vessel Authors: Deepak Bansal, V. Anantha Subramanian.	231-236
29	Title: Estimation of Hull - Propeller System Performance for Variation in Pitch- Diameter (P/D) Ratios Authors: Md. Kareem Khan, Amit Kumar, PC Praveen, Manu Korulla , PK Panigrahi.	246-244
30	Title: The Effect of Moonpool and Damping Plate on Damping Characteristics of Spar Hulls Using CFD Simulation Authors: Tom P.M., S. Nallayarasu.	245-252
31	Title: Hydrodynamic Analysis of Self Installing Mono Column Wind Float During Transition Phase Authors: Utkarsh Ramayan, R. Panneer Selvam, Nagan Srinivasan.	253-260

32	Title: Experimental and Computational Study of Lift - Based Flapping Foil Propulsion System for Ships Authors: Naga Praveen Babu Mannam, Krishnankutty P.	261-268
33	Title: Investigation on the Effect of Fineness Ratio on the Hydrodynamic Forces on an Axisymmetric Underwater Body at Inclined Flow Authors: Praveen PC, Krishnankutty P, Panigrahi PK.	270-276
34	Title: Flapping Flexible Foil Propulsion Authors: Sachin Y. Shinde, Jaywant H. Arakeri.	277-284
35	Title: Estimating Manoeuvring Coefficients of a Container Ship in Shallow Water Using CFD Authors: Ankush Kulshrestha, P Krishnankutty.	285-292
36	Title: Analysis and Design of Geotube Saline Embankment Authors: S. Sherlin Prem NisholdR. Sundaravadivelu , NilanjanSaha.	293-300
37	Title: Numerical and Experimental Determination of Velocity Dependent Hydrodynamic Derivatives of an Underwater Towed Body Authors: Roni Francis , K sudarshan , P Krishnankutty , V. Anantha Subramanian.	302-308