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1. Hydrodynamics of marine and offshore structures

1 January 2015
O.M. FALTINSEN

An overview of hydrodynamic problems related to the broad variety of ships and sea structures involved in transportation, oil and gas exploration and production, marine operations, recovery of oil-spill,...



2. Wind-wave induced dynamic response analysis for motions and mooring loads of a spar-type offshore floating wind turbine

1 January 2015
Yu MA | Zhi-qiang HU | Long-fei XIAO

Due to the energy crisis and the environmental issues like pollution and global warming, the exploration for renewable and clean energies becomes crucial. The offshore floating wind turbines (OFWTs)...



3. Effects of vegetations on the removal of contaminants in aquatic environments: A review

1 September 2014
Chao WANG | Sha-sha ZHENG | Pei-fang WANG | Jin QIAN

This paper reviews the removal of contaminants including nutrients, metals and organic pollutants by vegetations in aquatic environments. The removal efficiencies are considered with respect to 16,...



4. Recent progress in CFD for naval architecture and ocean engineering

February 2015
Frederick STERN | Zhaoyuan WANG | Jianming YANG | Hamid SADAT-HOSSEINI | Maysam MOUSAVIRAAD | Shanti BHUSHAN | Matteo DIEZ | Sung-Hwan YOON | Ping-Chen WU | Seong Mo YEON | Timur DOGAN | Dong-Hwan KIM | Silvia VOLPI | Michael CONGER | Thad MICHAEL | Tao XING | Robert S. THODAL | Joachim L. GRENESTEDT

An overview is provided of CFDShip-iowa modeling, numerical methods and high performance computing (HPC), including both current V4.5 and V5.5 and next generation V6. Examples for naval architecture...



5. Water hammer in the pump-rising pipeline system with an air chamber

1 January 2015
Sang-Gyun KIM | Kye-Bock LEE | Kyung-Yup KIM

Water hammer following the tripping of pumps can lead to overpressure and negative pressure. Reduction in overpressure and negative pressure may be necessary to avoid failure, to improve the efficiency...



6. Non-spherical multi-oscillations of a bubble in a compressible liquid

1 January 2015
Qian-xi WANG | Yuan-xiang YANG | Danielle Sweimann TAN | Jian SU | Soon Keat TAN

Bubble dynamics are associated with wide and important applications in cavitation erosion in many industrial systems, medical ultrasonics and underwater explosions. Two recent developments to this classical...



7. An analysis of dam-break flow on slope

1 January 2015
Li-hui WANG | Cun-hong PAN

The one-dimensional steep slope shallow water equations are used to model the dam-break flow down a uniform slope with arbitrary inclination, and analytical solutions are derived by the hodograph transformation...



8. Experimental study of flow field in interference area between impeller and guide vane of axial flow pump

1 January 2015

Hua ZHANG | Wei-dong SHI | Bin CHEN | Qi-hua ZHANG | Wei-dong CAO

Axial flow pump is a kind of typical pumps with rotor-stator interaction, thus the measurement of the flow field between impeller and guide vane would facilitate the study of the internal rotor-stator...



9. Hydrodynamic optimization of a triswach

1 January 2015

Chi YANG | Fuxin HUANG | Hyunul KIM

A new methodology for hydrodynamic optimization of a TriSWACH is developed, which considers not only the positions of the side hulls but also the shape of the side hulls. In order to account for the...



10. Interactions between vegetation, water flow and sediment transport: A review

February 2015

Chao WANG | Sha-sha ZHENG | Pei-fang WANG | Jun HOU

The vegetation, as one of the most important components, plays a key role in the aquatic environment. This paper reviews recent progress on the complex interaction between the vegetation and the water...



11. Finite Element Numerical Simulation of Three-Dimensional Seepage Control for Deep Foundation Pit Dewatering

October 2008

Zu-jiang LUO | Ying-ying ZHANG | Yong-xia WU

For deep foundation pit dewatering in the Yangtze River Delta, it is easy to make a dramatic decrease of the underground water level surrounding the dewatering area and cause land subsidence and geologic...



12. The mechanical response of piles with consideration of pile-soil interactions under a periodic wave pressure

1 January 2015

Huan-ling WANG | Wei-ya XU | Feng ZHU

The pile-soil interaction under wave loads is an extremely complex and difficult issue in engineering. In this study, a physical model test is designed based on the principle of the gravity similarity...



13. Hydrodynamic performance of distributed pump-jet propulsion system for underwater vehicle

1 September 2014

Xiao-jun LÜ | Qi-dou ZHOU | Bin FANG

A type of distributed pump-jet propulsion system (DPJP) is developed with two or four specially designed pump-jet pods located around the axisymmetric underwater vehicle body symmetrically. The flow...



14. Numerical simulation and experimental study of drag-reducing surface of a real shark skin

April 2011

De-yuan ZHANG | Yue-hao LUO | Xiang LI | Hua-wei CHEN

It is well known that shark skin surface can effectively inhibit the occurrence of turbulence and reduce the wall friction, but in order to understand the mechanism of drag reduction, one has to solve...



15. Performance of the bio-inspired leading edge protuberances on a static wing and a pitching wing

1 January 2015

Ya-yun WANG | Wen-rong HU | Shi-dong ZHANG

It is shown that the leading edge protuberances on the flippers of a humpback whale can significantly improve the hydrodynamic performance. The present study numerically investigates the flow control...



16. Influences of soil hydraulic and mechanical parameters on land subsidence and ground fissures caused by groundwater exploitation

February 2014

Xing-xian CHEN | Zu-jiang LUO | Shi-ling ZHOU

In order to study the influences of hydraulic and mechanical parameters on land subsidence and ground fissure caused by groundwater exploitation, based on the Biot's consolidation theory and combined...



17. Numerical prediction of 3-D periodic flow unsteadiness in a centrifugal pump under part-load condition

April 2014

Ji PEI | Shou-qi YUAN | Xiao-jun LI | Jian-ping YUAN

Numerical simulation and 3-D periodic flow unsteadiness analysis for a centrifugal pump with volute are carried out in whole flow passage, including the impeller with twisted blades, the volute and...



18. A novel design of composite water turbine using CFD

February 2012

Ji-feng WANG | Janusz PIECHNA | Norbert MÜLLER

This paper presents computational investigation of a novel design of composite material axial water turbine using Computational Fluid Dynamics (CFD). Based on three-dimensional numerical flow analysis,...



19. Entropy generation in bypass transitional boundary layer flows

October 2014

Joseph GEORGE | Landon D. OWEN | Tao XING | Donald M. MCELIGOT | John C. CREPEAU | Ralph S. BUDWIG | Kevin P. NOLAN

The primary objective of this study is to evaluate the accuracy of using computational fluid dynamics (CFD) turbulence models to predict entropy generation rates in bypass transitional boundary layers...



20. New developments and propeller design

October 2010

G. Kuiper

The use of newly available tools in propeller design is discussed. It is stated that new tools are too much used to imitate experimental results. The paper takes a step back and investigates new approaches...



21. Theoretical and experimental studies of the transport process of micro-particles in static water

1 January 2015

Yi-fang HAN | Ning MEI

A theoretical model is established in this paper to investigate the micro-particle behavior in the static water. The forces acting on the micro-particles are analyzed to obtain a description of the...



22. Run-up of non-breaking double solitary waves with equal wave heights on a plane beach

1 January 2015

Jie DONG | Ben-long WANG | Hua LIU

The evolution and run-up of double solitary waves on a plane beach were studied numerically using the nonlinear shallow water equations (NSWEs) and the Godunov scheme. The numerical model was validated...



[23. A drifting trajectory prediction model based on object shape and stochastic motion features](#)

1 January 2015

Sheng-zheng WANG | Hao-bing NIE | Chao-jian SHI

There is a huge demand to develop a method for marine search and rescue (SAR) operators automatically predicting the most probable searching area of the drifting object. This paper presents a novel...



[24. Unsteady flow analysis and experimental investigation of axial-flow pump](#)

February 2010

De-sheng ZHANG | Wei-dong SHI | Bin CHEN | Xing-fan GUAN

The three-dimensional unsteady turbulent flow in axial-flow pumps was simulated based on Navier-Stoke solver embedded with $k - \epsilon$ RNG turbulence model and SIMPLEC algorithm. Numerical results show that...



[25. Numerical prediction of submarine hydrodynamic coefficients using CFD simulation](#)

December 2012

Yu-cun PAN | Huai-xin ZHANG | Qi-dou ZHOU

The submarine Hydrodynamic coefficients are predicted by numerical simulations. Steady and unsteady Reynolds Averaged Navier-Stokes (RANS) simulations are carried out to numerically simulate the oblique...

