## **Technology Review 2012**



## Contents

## **ABOUT KOMtech**

- 1 CHAIRMAN'S MESSAGE
- **5** EDITORIAL NOTE
- 7 CORPORATE HIGHLIGHTS

## RESEARCH HIGHLIGHTS

11 Hose Transfer Handling System for Offshore LNG Offloading

A transfer method is used to handle flexible composite cryogenic hoses for LNG offloading in offshore environment

19 Development of OTD Hydraulic Jacking System

An improved design of the hydraulic jacking system for jackup vessels in offshore installation market

25 Simulating LNG Liquefaction Plant Start-up

This paper investigates the dynamic simulation of an LNG liquefaction plant to better understand its operational behavior and control of the process

31 Ballast Water Treatment System Selection

A model to assist ship owners in selecting an appropriate ballast water treatment system for their vessels

39 Wet Scrubbing Process for Marine Emission Control

KOMtech has developed a high performance effective wet scrubbing process for  $SO_x$  removal from marine emission

49 CFD Simulation of Water Oscillations in the Moonpool of a Drillship

Advanced computational fluid dynamics simulation approach with high performance computing techniques are applied to simulate water oscillations in the moonpool of a drillship

63	New Painting Technologies for Productivity Improvement Discusses how technology is employed in the production activities of the yards to augment productivity of the painting process
67	Fatigue Assessment of Three-Chord Jacket Substructure for Offshore Wind Turbines in the North Sea  A study is carried out on the fatigue assessment of a three-chord jacket substructure to determine if simplified assumptions used in Damage Equivalent Load method will lead to overdesign
	FEATURED ARTICLES
79	Comparison of SNAME T&RB 5-5A Framework and a Plasticity-based Spudcan Model for Jackup Foundation Assessments  A comparison is done using a plasticity model with the SNAME method for jackup foundation assessments
93	Use of Field Penetrometer Data for an Integrated Jackup Installation System  An integrated jackup installation system is used to assist operators in deciding how to prevent or mitigate potential geotechnical hazards
113	Installing Offshore Wind Turbines in Harsh Environments Outlines how wind turbine blades are handled on a large four-legged jackup vessel and installed offshore safely and efficiently
125	New Generation Deep Water OSVs for Oil & Gas Operation The paper gives an insight into the features of new generation PSVs and AHTS for supporting more complex deepwater field developments and describes two new proprietary designs from MTD

Emulsified Fuel System for Marine Diesel Engines
The paper presents emulsified fuel system as a compelling solution to ship owners for reducing fuel consumption

131