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Multi-Stabilizer Devices for Marine Vessel, Design and Control-A Review

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Naziri, Harith Aslam Ahmad ; Ibrahim, Ahmad Imran

International Islamic University Malaysia, Department of Mechatronics, Kuala Lumpur, 53100, Malaysia

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Abstract

Over the years, a new improved technology, mechanisms and systems for marine vessels' stabilization emerge to help improving the condition of crew, cargo or anything on-board that experience the possibilities of being capsized. Referring to marine environment, boat is undeniably subjected to interruption or disturbances from surrounding such as unpredictable waves and strong wind. A variety types of stabilizers are present with different performances based on various kind of control implemented merely to focus on improving the human condition during on-board operation such as berthing, drydocking, loading and unloading or mooring (static) regardless at the inshore or

offshore location. Thus, this paper proposes then a review-based discussion of the solutions addressing the issue regarding rolling, including bilge keel, active fin, gyroscopic stabilizer and anti-rolling tank. In addition to this, it could be seen afterwards that none of them could be viewed as the best as for every mechanism they play different role for different ship condition. Though so, it is great to perceive that the existence of new advance technology such as gyrostabilizer is uniquely evolved to remove the extra drag, maintaining the speed of the ship while reducing rolling of the ship. © 2022 IEEE.

Author keywords

Active Fin stabilizer; Anti-Rolling Gyrostabilizer (ARG); Anti-Rolling Tank (ART); Bilge keel

Indexed keywords

Engineering controlled terms

Fins (heat exchange); Offshore oil well production; Offshore technology; Tanks (containers); Unloading

Engineering uncontrolled terms

Active fin stabilizer; Anti-rolling gyrostabilizer; Anti-rolling tank; Bilge keel; Condition; Fin stabilizers; Marine control; Marine vessels; Stabiliser; Vessel design

Engineering main heading

Ships

Corresponding authors

Corresponding
author

H.A.A. Naziri

Affiliation

International Islamic University Malaysia, Department of Mechatronics,
Kuala Lumpur, 53100, Malaysia

Email address

aslamharith@gmail.com

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