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Numerical Modeling of Structural Failure of a Ship During the Collision Event

Authors : Adjal Yassine, Semmani Amar

Abstract : During the last decades, The risk of collision has been increased, especially in high maritime traffic. As the consequence, the demand is required for safety at sea and environmental protection. For this purpose, the consequences prediction of ship collisions is recommended in order to minimize structural failure. additionally, at the design stage of the ship, damage generated during the collision event must be taken into consideration. This structural failure, in some cases, can develop into the progressive collapse of other structural elements and generate catastrophic consequences. The present study investigates the progressive collapse of ships damaged by collisions using the Non -linear finite element method. The failure criteria are taken into account. The impacted area has a refined mesh in order to have more reliable results. Finally, a parametric study was conducted in this study to highlight the effect of the ship's speed, as well as the different impacted areas of double-bottom ships.

Keywords : collsion, strucural failure, ship, finite element analysis
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