Mechanical behavior of composite structures subjected to constant slamming impact velocity: an experimental and numerical investigation

O.H. Hassoon , M. Tarfaoui , A. El Malki Alaoui , A. El Moumen

PII: S0020-7403(17)30453-8
DOI: 10.1016/j.ijmecsci.2018.05.035
Reference: MS 4346

To appear in: *International Journal of Mechanical Sciences*

Received date: 22 February 2017
Revised date: 22 April 2018
Accepted date: 17 May 2018

Please cite this article as: O.H. Hassoon , M. Tarfaoui , A. El Malki Alaoui , A. El Moumen , Mechanical behavior of composite structures subjected to constant slamming impact velocity: an experimental and numerical investigation, *International Journal of Mechanical Sciences* (2018), doi: 10.1016/j.ijmecsci.2018.05.035

Highlights

- Experimental study and the help of numerical methods the structural behavior and the effect of the flexibility of composite panels on hydrodynamic loads and the dynamic deformation response.
- A high velocity shock machine was used to perform a constant velocity during water entry on composite panels.
- The numerical model was implemented using Coupled Eulerian–Lagrangian (CEL) approach for modeling of a three dimensional slamming impact.
- The numerical results give a good correlation with the executed experimental results in both hydrodynamic force and deformation response.
- Results of this study can be assisting vessel designers to understand the influence of the elastic structural behavior on hydrodynamic loads.