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Intact stability assessment of RO-RO pax vessel in the framework of Second Generation Intact Stability criteria with a specific focus on the operational profile.

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One year later the finalization of Second Generation Intact Stability criteria (SGISc), there is still the need to validate the robustness and consistency of these criteria as indicated by IMO. The stability failures addressed by SGISc take into account the dynamical aspects in relation with the actual seaway conditions which may affect the ship stability performances, i.e. they focus on the effects of hull and wave interaction. Vulnerability to a stability failure cannot be always fixed acting only on the vessel design; also operative considerations are needed in order to reduce the risk level during the navigation. For this reason, the multilayered approach has been adopted: it consists of three assessment levels, with no specific reference to the operational profile, and a further level suggesting which measures are to be adopted for a safe ship routing in specific sailing conditions.

After an introduction to SGISc, an application will be carried out. A Ro-Ro pax ferry has been selected as subject of this investigation. Vulnerability levels (i.e. Level 1 and Level 2) are applied in order to assess the compliance of a modern representative Ro-Ro ferry. Moreover, a study about how the environmental conditions and operative parameters may affect the results is undertaken considering different scenario, such as the geographical area or the ship service speed.

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