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FILTERING SPURIOUS HIGH-FREQUENCY MODES IN LANDSLIDE IMPACT ON AN OFFSHORE INFRASTRUCTURE

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While simulating the impact of submarine landslides on underwater structures, one must adequately model contact interactions. Contact problems often exhibit unreasonable superfluous high-frequency modes leading to strong unphysical oscillations, which may significantly degrade the quality of the results. In order to recover a clean solution to the problem, it is necessary to apply some numerical techniques to filter out those spurious high-frequency modes.

In this work, we examine some low-pass filtering approaches to clean the numerical solution of the impact problems by filtering those high-frequency modes. We introduce the different approaches, their tradeoffs, and we demonstrate the techniques on several landslide impact events.