# Article information:

A numerical study of three-dimensional liquid sloshing in tanks - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0021999107005414?via%3Dihub>

# Article summary:

1. Liquid sloshing is an important phenomenon in coastal and offshore engineering, and has been studied both analytically and experimentally.

2. Many numerical models have been developed to study liquid sloshing, including the boundary element method (BEM), finite element method (FEM), and finite difference method (FDM).

3. This article presents a two-phase fluid flow model that solves the spatially averaged Navier–Stokes equations constructed in an arbitrarily moving non-inertial frame to represent a rigid tank under six degree-of-freedom (DOF) external excitation.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

This article provides a comprehensive overview of the research on liquid sloshing in tanks, from analytical solutions to numerical models. The authors provide a detailed description of the various methods used to study this phenomenon, as well as their advantages and limitations. The article is well written and provides clear explanations of the different approaches used to study liquid sloshing. However, there are some potential biases that should be noted. For example, the authors focus mainly on numerical models for studying liquid sloshing, while other approaches such as laboratory measurements are only briefly mentioned. Additionally, the authors do not discuss any potential risks associated with using these numerical models or any possible counterarguments that could be made against them. Furthermore, there is no discussion of how these models can be improved or what further research needs to be done in this area. In conclusion, while this article provides a thorough overview of current research on liquid sloshing in tanks, it does not provide an exhaustive analysis of all aspects related to this topic.

# Topics for further research:

* Laboratory measurements of liquid sloshing
* Risk assessment of numerical models for liquid sloshing
* Improvements to numerical models for liquid sloshing
* Analytical solutions for liquid sloshing
* Experimental validation of numerical models for liquid sloshing
* Counterarguments against numerical models for liquid sloshing

# Report location:

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