

Combining Laws of Mechanics and Hydrostatics in Non Inertial Reference Frames

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Abstract : Method of combined teaching laws of classical mechanics and hydrostatics in non-inertial reference frames for undergraduate students is proposed. Pressure distribution in a liquid (or gas) moving with acceleration is considered. Combined effect of hydrostatic force and force of inertia on a body immersed in a liquid can lead to paradoxical results, in a motion of pendulum in particular. The body motion under Stokes force influence and forces in rotating reference frames are investigated as well. Problems and difficulties in student perceptions are analyzed.

Keywords : hydrodynamics, mechanics, non-inertial reference frames, teaching

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