An accuracy analysis of the approach to added mass distribution over deforming body of a lifting vehicle for the calculation of unsteady transversal hydrodynamical forces in the process of underwater ejection

© A.V. Plyusnin[1,2], I.A. Dodenko[1]

[1]Bauman Moscow State Technical University, Moscow, 105005, Russia
[2]JSC "MIC "NPO Mashinostroyenia", Moscow region, Reutov-town, 143966, Russia

Considering the model problem, unsteady transversal hydrodynamical forces applied to the body oscillating in water are calculated by the boundary element method (BEM). These results differ significantly from corresponding results obtained by application of the classical hydrodynamical concept of added masses to deforming bodies.

Keywords**:** *underwater ejection of lifting vehicle, transversal elastic oscillations, added masses, boundary element method, strip method.*

Plusnin A.V. graduated from the Dnepropetrovsk State University by speciality Hydroaerodynamics and took a post-graduate course at the Wave and Gas Dynamics Department of Lomonosov Moscow State University. Ph.D., Assoc. Professor of the Computational Mathematics and Mathematical Physics Department of Bauman Moscow State Technical University, Deputy Chief of Section of JSC "MIC "NPO Mashinostroyeniya". Author of several articles on unsteady problems in hydrogasdynamics and theory of elasticity. e-mail: andrey.plusnin@gmail.com.

Dodenko I.A. (b. 1989) graduating student of the Computational Mathematics and Mathematical Physics Department of Bauman Moscow State Technical University. e-mail: bismahrk1939@mail.ru.