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# On subsonic boundary-layer receptivity to acoustic waves over an aircraft wing coated by a thin liquid film

**Zhaoyu Wei**

*Shanghai Jiao Tong University, China*

We have designed and implemented a novel proof-of-concept of a fixed-wing unmanned aerial–underwater vehicle (UAUV) based on the lifting-principle. The UAUVs are designed with an overall density between the water and air. The fixed-wings are deployed to overcome gravity and bey buoyancy respectively during air flight and water cruise. As there are no buoyancy regulation and emergency load rejection systems used, the novel UAUV is relatively simpler than those of ordinary autonomous underwater vehicles or other UAUVs. During water exit, the UAUVs are driven by a combination effect of buoyancy, inertia with upwards velocity and pull force of tract-propellors. We have presented the design principle, methodology, as well as the field test results of the UAUV, and also discussed its perforemces, such as endurance, duration, flight speed, attitudes during water-to-air transitions, and landing on the water surface are also analyzed and discussed.

## Biography

Zhaoyu Wei has completed his PhD at the age of 27 years from School of Marine Science and Technology, Northwestern Polytechnoical University. Afterthat, he works as a research fellow in the school of mechanical aerospace and engineering. He is now an associate professor in the School of Oceangraphy, Shanghai Jiao Tong University. He has published more than 20 papers in reputed journals in the areas of aerospace engineering, unmmaned aerial vehcils, flow control, aerodynamic/hydrodynamics and the unmmanded aerial-underwater vehicle, and he has also been serving as an guest editor for a special issue in the Journal fo Frontiers in Aeropspace Sciences.