**Hydrodynamic Doppler effect in a weakly compressible two-dimensional medium** ILDOO KIM, None — This study is based on two experimental observations in flowing soap film channels. First, the vorticity field is strongly correlated with the thickness field. Second, the thickness field propagates at the Marangoni wave speed. Using the two observations, we propose and review the hypothesis that the vorticity field propagates at the Marangoni wave speed $c$. It is inferred from the hypothesis that a retarded hydrodynamic potential function can be solved in an approach similar to the Lienard-Wiechert potential of the relativistic electromagnetic theory, and the retarded potential implies an elongation effect of a vortex array by $1/(1 + v/c)$ when the array recedes from the origin at $v$. The theory is compared with the experiment, and they agree within the margin of measurement error.

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None

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