

Abstract Submitted  
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**Hollow Vortices in Flow Past a Flat Plate** ALAN ELCRAT, Wichita State University, LUCA ZANNETTI, Politecnio di Torino — Closed and open hollow wakes are considered as analytic models for the 2D inviscid steady flow past a plate normal to the stream. It is shown that only open configurations which satisfy the Kutta condition exist. The main argument is based on considering a plate located on the edge of a step with varying height. It is shown that solutions for open wakes exist for backward, null and forward-facing steps, while closed wakes only exist for backward-facing steps. The occurrence of secondary separation has been modeled by adding a hollow region attached to the downstream corner. Peculiar accuracy issues of the problem are pointed out which may explain other contradictory results from the literature. It is shown how the Kirchhoff wake is a limiting solution for certain values of the governing parameters.

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