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Mathematical modeling of "2P" mode vortex wakes SAIKAT BASU, MARK STREMLER, Virginia Tech, TEIS SCHNIPPER, ANDERS ANDERSEN, Technical University of Denmark — The "2P" mode vortex wake, in which two vortex pairs are generated per shedding cycle, is a commonly occurring wake structure behind oscillating bluff bodies. We will present an idealized model of these wakes that consists of a singly-periodic Hamiltonian system of four point vortices. The system is made integrable with an imposed spatial symmetry that is motivated by the experimentally observed wake structure. This model generalizes our previous work by allowing for unequal vortex strengths in the shed pairs. Comparisons with experimental wakes generated by a flapping foil in a flowing soap film show that this model can be used to characterize the vortex trajectories in "2P" mode wakes and to estimate the experimental vortex strengths.

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