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Hairpin Vortices: Autogeneration and Interaction[1] DANIEL SABATINO, RIJAN MAHARJAN, ANDREW SANDERS[2], Lafayette College — The regeneration of hairpin vortices is examined in a free-surface water channel where vortices are artificially generated by means of injection in a laminar boundary layer. The process is visualized with dye and hydrogen bubble-wire techniques. The strength of an isolated hairpin required to begin the autogeneration process is established by means of PIV measurements on the symmetry plane. Because hairpins are in close proximity in a fully-turbulent boundary layer, two hairpins are generated at different streamwise locations and allowed to interact at different stages of development. The relative position, strength and maturity of the interacting hairpins that generate secondary vortices are examined. The morphology of the generation process and of the resulting secondary hairpin for both the isolated and interacting cases are discussed and compared to previous work.

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