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Optimal spatial disturbances along the swept attachment line ALAN GUEGAN, LadHyX, Ecole Polytechnique, PETER SCHMID, PATRICK HUERRE, LadHyX, CNRS Ecole Polytechnique — Optimal spatial perturbations are described in the context of swept Hiemenz flow. The two parameters are the Reynolds number Re based on the flow stretching rate and spanwise sweep velocity, and the width L of the chordwise energy weight that defines the region of interest around the attachment line. At Reynolds numbers $Re \sim 500$ typically found in commercial aircrafts optimal spatial disturbances take the shape of counter-rotating spanwise vortices. Energy is amplified by the so-called lift-up mechanism in the spanwise direction. Amplification is stronger at higher Reynolds numbers but is mostly unchanged as L increases, although more counter-rotating spanwise vortices are observed. A physical interpretation is suggested that accounts for the shape of the perturbations and energy amplification scalings with L and the Reynolds number Re.

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