

## **Vortices and streaks in swept-attachment line boundary layers**

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Fluctuations developing in the vicinity of the leading edge of a swept wing are known to crucially affect the transition to turbulence on the upper surface of the wing. The objective of the presentation is to characterize the optimal perturbations which prevail in the swept-attachment line boundary layer at the leading edge. A variational approach is implemented for temporal and spanwise developing perturbations in order to determine the initial condition which maximizes the kinetic energy of the fluctuations. As in classical boundary layers, the perturbations achieving maximum transient growth are found to take the form of vortices aligned in the spanwise direction which, through the lift-up mechanism, give rise to spanwise streaks. Remarkably the preferred spatial scale is the same as in classical flat-plate boundary layers, provided it is suitably renormalized with the boundary layer thickness.