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Nonlinear intrinsic streaks in the flat plate boundary layer CARLOS MARTEL, JUAN A. MARTIN, ETSI Aeronauticos, Universidad Politecnica de Madrid, 28040-Madrid — Luchini [JFM, vol.327, 1996] analyzed the flow near the leading edge of a flat plate boundary layer using the linearized problem around the Blasius solution. He found that there is just one single streaky mode (periodic in the spanwise direction) that grows downstream from the leading edge. The existence of this growing mode indicates that there is a one parameter family of 3D steady streak solutions that emerge from the leading edge of the boundary layer. In this presentation, we will numerically continue downstream this family of intrinsic streaks (intrinsic because they appear in complete absence of any free stream perturbations) using the Reduced Navier Stokes formulation, and we will show and comment the characteristics of the resulting Reynolds-number independent, fully nonlinear streaks.

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