

Abstract Submitted  
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**Dynamics of the intense vorticity structures near the turbulent/nonturbulent interface in jets** CARLOS DA SILVA, RICARDO REIS, IST - Technical University of Lisbon — Direct numerical simulations (DNS) of turbulent planar jets are used to analyse the dynamics of the intense vorticity structures (IVS) near the turbulent/nonturbulent (T/NT) interface in jets. Deep inside the jet shear layer the characteristics of the IVS are similar to the IVS found in many other flows: the mean radius, tangential velocity, and circulation Reynolds number are  $R/\eta \approx 4.6$ ,  $u_0/u' \approx 0.8$ , and  $Re_\Gamma/Re_\lambda^{1/2} \approx 28$ , where  $u_0$ , and  $Re_\lambda$  are the root-mean-square of the velocity fluctuations and the Reynolds number based on the Taylor micro-scale, respectively. Statistics conditioned on the distance from the T/NT interface are used to analyse the effect of the T/NT interface on the dynamics of the IVS and show that the mean radius  $R$ , tangential velocity  $u_0$  and circulation  $\Gamma$  of the IVS increases as the T/NT interface is approached, while the vorticity norm  $|\omega|$  stays approximately constant. Unlike the IVS deep inside the shear layer, there is a small predominance of vortex diffusion over stretching for the IVS near the T/NT interface implying that the core of these structures is not stable *i.e.* it will tend to grow in time.

Carlos da Silva  
IST - Technical University of Lisbon

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