

Dynamics of a flexible blade subjected to von Karman vortices



Yohann Bachelier, Delphine Doppler, J. John Soundar Jerome, Nicolas Rivière



Université de Lyon, Université Claude Bernard Lyon 1, INSA de Lyon, Laboratoire de Mécanique des Fluides et d'Acoustique



UMR 5509, Boulevard du 11 novembre 1918, 69622 Villeurbanne CEDEX, Lyon, France



Context

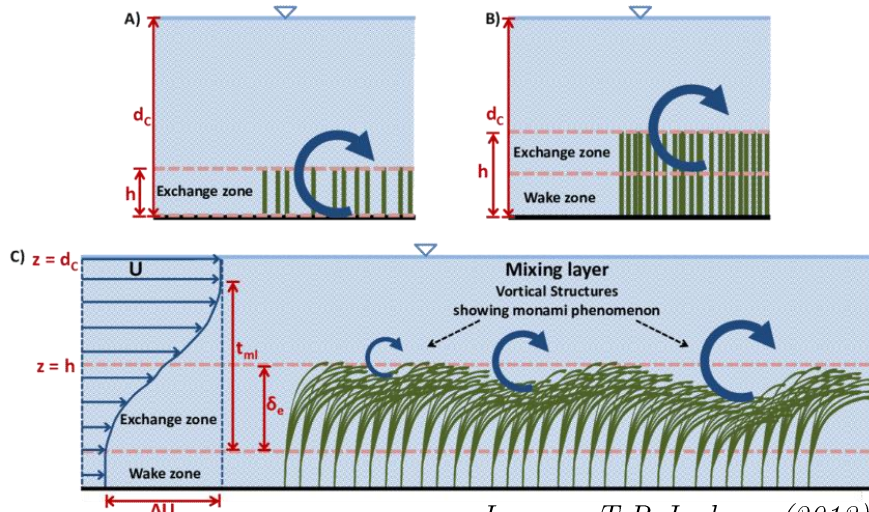
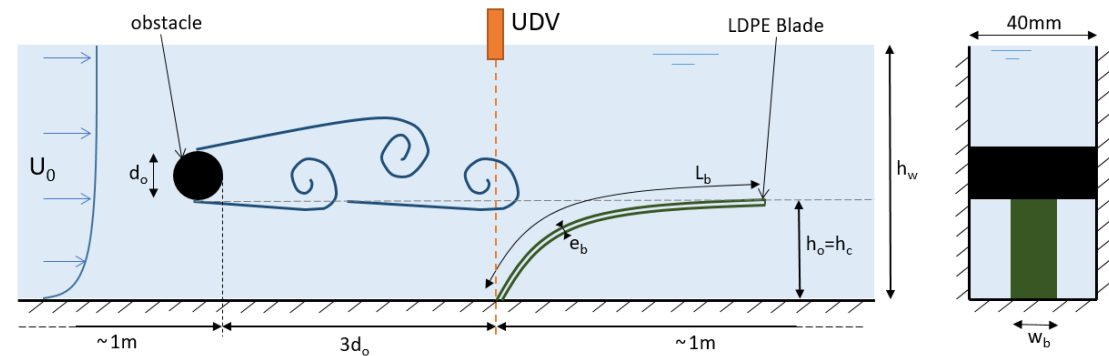
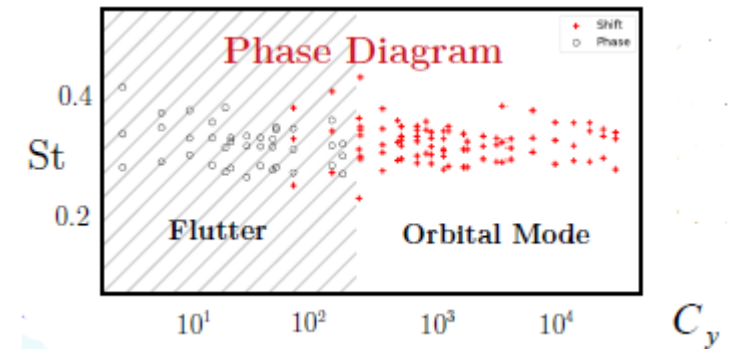
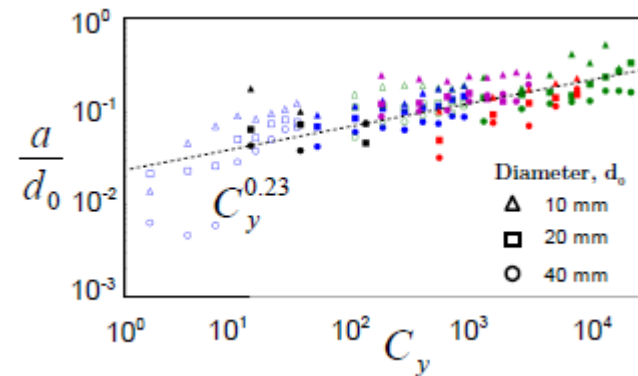


Image : T.R.Jackson (2013)

Experimental setup



Results on dynamics



Parameters

- Blade length L_b → Nombre de Cauchy C_y
- Blade thickness e_b → Nombre de Reynolds Re
- Flow velocity U_0 → Nombre de Reynolds Re
- Obstacle diameter d_o → Nombre de Reynolds Re
- Vortex frequency f_v → Nombre de Strouhal St