

Visualization of a Car Mirror Wake

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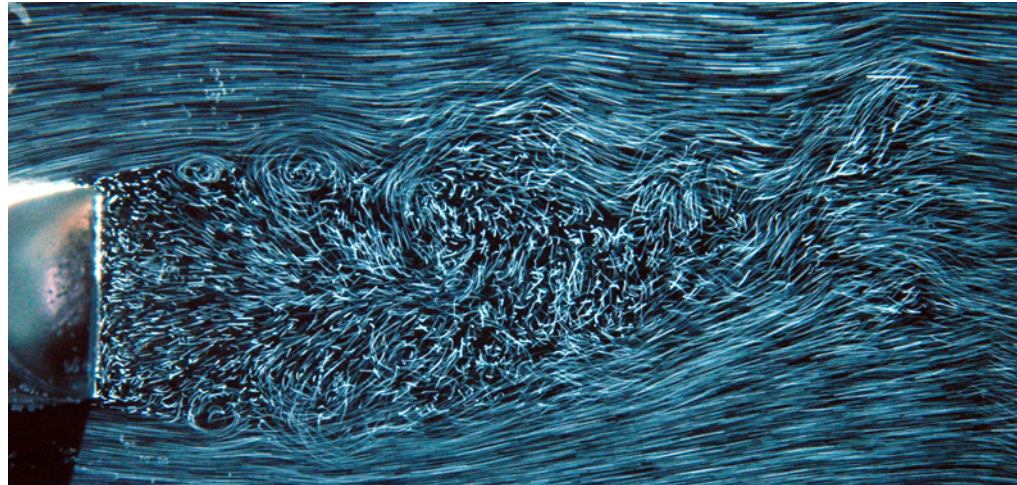


Fig. 1. Flow visualization of side view.

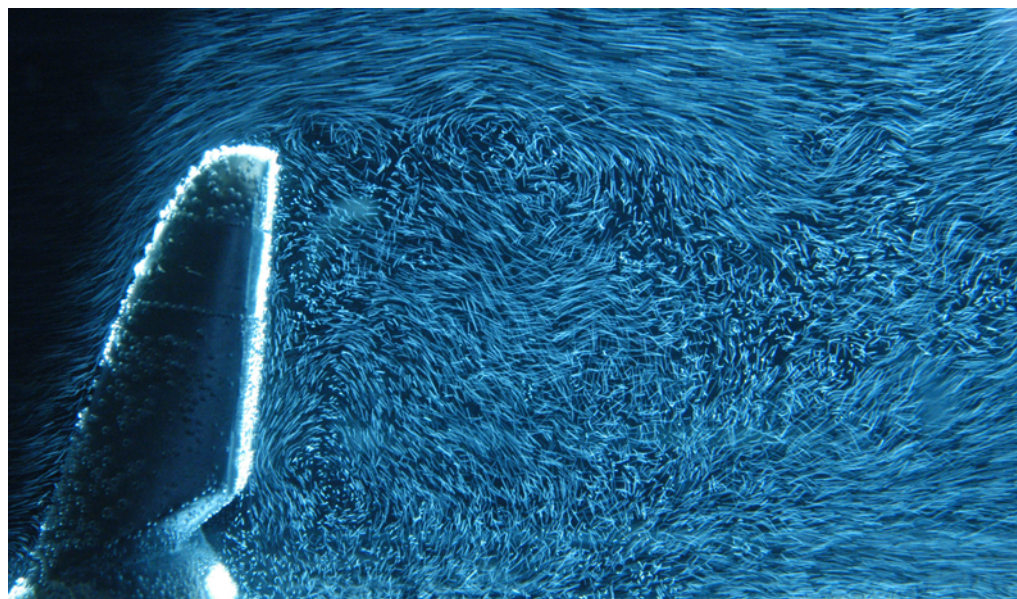


Fig. 2. Flow visualization of plane view.

The flow structures around externally mounted vehicle mirror were visualized at a Reynolds number of 125,000 by using solid tracers. Figure 1 shows the flow visualization photograph of the side view around the mirror. The image clearly reveals that two vortex streets in the anti-symmetric or inphase mode are produced by two sides of the mirror edge due to the anti-symmetrical mirror. The separation bubble or the region of the reverse flow behind the mirror is also observed. Two vortex streets gradually grow up downstream, however, behind the region of the reverse flow the oscillation of large vortices is formed. The flow visualization photograph of the plan view is shown in Fig. 2. In this case, besides a large separation region, two evident vortex regions are found in this separation region. One is located between the separation bubble and the free stream (i.e. in shear layer), which are produced by the tip of the mirror. The other is located near the root of the mirror where a shedding vortex occurs.