

# Lasers for Laser Doppler Velocimetry

Laser Doppler Velocimetry is a well established method for analysing particle movement at a single point, either in a gas or a liquid.

The particle movement information is collected using two overlapped focused laser beams. The beams form an interference pattern at the intersection. The particles passing through this region scatter light with an intensity that fluctuates at a frequency proportional to the Doppler shift between the incident and scattered light and from this data it is possible to measure the velocity of the particles. Usually one laser color is used for each velocity vector dimension.

Particle flow analysis through LDV are used in a wide variety of applications in science as well as in industry, including aerodynamics in avionics, fuel injection and combustion studies in automotive, inject diagnostics in semiconductor manufacturing and soot measurements in environmental monitoring.

The laser source suitable for such applications needs to have long and stable coherence length, low noise and good power stability. Cobolt CW diode pumped lasers (DPL) are thus perfectly suited to this application. In addition, Cobolt's range of DPLs also includes shorter wavelengths, such as 355 nm, that can be used to give additional information about the size of the particles.



Fluid dynamics using LDV