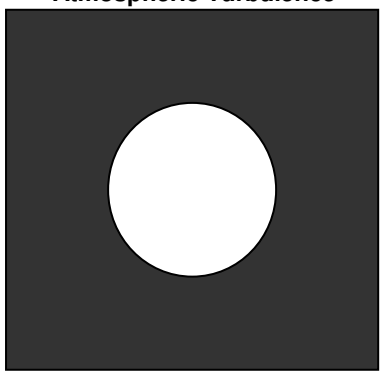
OFS Technology Overview

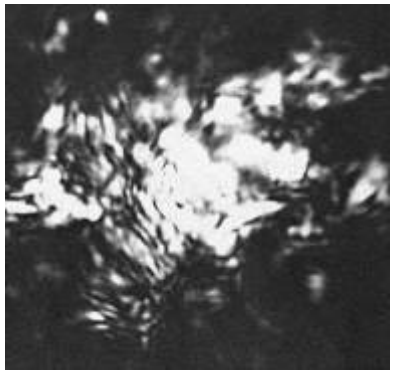
OSI's Optical Flow Sensor technology is based on two concepts:

1) **Optical Scintillation (Light Fluctuation)**
2) **Temporal cross-correlation (i.e. Time of Flight)**

Light *without* Atmospheric Turbulence



Light *with* Atmospheric Turbulence



The left-hand picture shows how light behaves without atmospheric turbulence (as in the vacuum of space). The right-hand picture demonstrates the diffusion of light (a.k.a. optical scintillation) caused by atmospheric turbulence, which exists in the air everywhere.

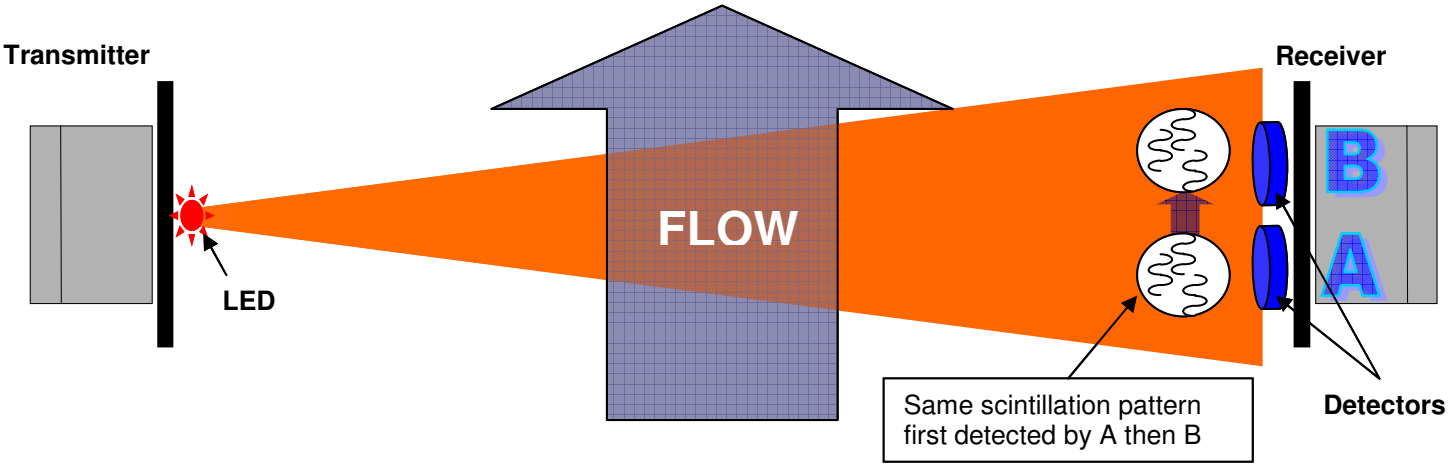
Scintillation – the refraction or diffraction of light through air pockets with different temperatures & densities (i.e. atmospheric turbulence).

Optical scintillation induces light fluctuations. This phenomenon is a measurable atmospheric condition. The method employed to measure scintillation has been in use for over **30 years** in atmospheric remote sensing.

Examples of scintillation – the light shimmering off a blacktop road on a hot day or the twinkling of a star at night.

OFS technology is independent of the media temperature, pressure, humidity & opacity!

Temporal Cross-Correlation



Temporal Cross Correlation* – A Statistical Method to Measure Time of Flight:** OFS measures the movement of scintillation "cells." Detector A senses the scintillation pattern first and then detector B senses the same pattern as it moves through the beam and past both detectors. OFS measures the ***time at which this pattern is detected at each point and knows the ***distance*** between the two detectors. Using advanced digital signal processing and temporal cross-correlation, OFS can calculate the ***velocity*** of the flow:

Velocity = distance / time