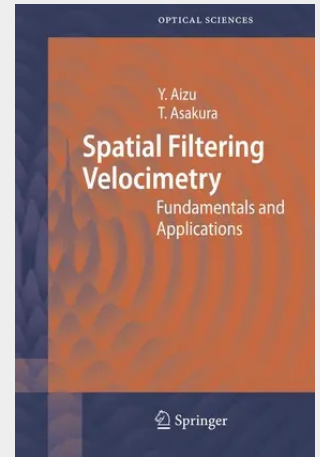


Spatial Filtering Velocimetry

Fundamentals and Applications

The invention of lasers in the early 1960s enhanced the rapid development of optoelectronics which had introduced various optical measurement methods. A typical example of the methods is found in measurements of velocity. It is well recognized that optical velocity measuring methods have important advantages, such as noncontacting and nondestructive operations, over conventional methods employed previously. These fundamental advantages are indicated by the enormous research effort which has gone into their development for many years. One of the optical methods proposed and studied to measure the velocity is laser Doppler velocimetry which was proposed in the early 1960s and extensively studied by many investigators and is at present applied to practical uses. Another is spatial filtering velocimetry which was also proposed in the early 1960s and studied by a number of investigators. In comparison with laser Doppler velocimetry, spatial filtering velocimetry had not received much attention from investigators but was studied steadily by several research groups mainly in Japan and is now practically used in various fields of engineering. Several important books on laser Doppler velocimetry have already been published, but there has been no book on spatial filtering velocimetry. This book is the first contribution to spatial filtering velocimetry. Therefore, the Introduction of Chapter 1 provides in detail a historical review of spatial filtering velocimetry, relating it to other optical methods and discussing its practical relevance. In the book following Chap.

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