



Photon Correlation Techniques in Fluid Mechanics

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Springer Nov 2013, 2013. Taschenbuch. Book Condition: Neu. 229x152x22 mm. This item is printed on demand - Print on Demand Neuware - Photon correlation is a kind of spectroscopy designed to identify optical frequency shifts and line-broadening effects in the range of many MHz down to a few Hz. The optical intensity is measured in terms of single photon detection events which result in current pulses at the output of photomultiplier tubes. This signal is processed in real time in a special-purpose parallel processor known as a correlator. The resulting photon correlation function, a function in the time domain, contains the desired spectral information, which may be extracted by a suitable algorithm. Due to the non-intrusive nature and the sound theoretical basis of photon correlation, the phenomena under study are not disturbed, and the parameters in question can be precisely evaluated. For these reasons photon correlation has become a valuable and in many instances indispensable technique in two distinct fields. One of these is velocimetry in fluid flow. This includes hydro- and aerodynamic processes in liquids, gases, or flames where the velocity field may be stationary, time periodic, or turbulent, and may range from micrometers...



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