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### Advance of daytime working single photon lidar

#### Abstract:

Single-photon lidar has extremely high sensitivity and is widely used in various remote target detection scenarios. Compared with traditional linear detection, it can obtain a longer detection range under limited volume, weight, power consumption and other resource envelope. For the single-photon lidar system, the improvement of detection ability depends on the suppression level of background noise. Especially for the single-photon lidar system working in the daytime, the background noise caused by sunlight is the main influence limiting the detection ability of the system. In this paper, the latest progress of single-photon lidar in daytime working is introduced. Through a series of effective background light suppression techniques, the detection ability of the system in daytime is greatly improved, and the detection effect is equivalent to that at night. In addition, in order to evaluate the “return on investment” performance of a lidar system, a normalized evaluation model, so called the ROI index is also proposed, which can intuitively evaluate the “economic” performance of lidars.

#### Biography

**Liu Bo** is from Institute of Optics and electronics, CAS. He is the deputy director of Key Laboratory of Space Optoelectronics Precision Measurement Technology, CAS, also the member of teaching Committee of School of Optoelectronics, University of Chinese Academy of Sciences, and keynote professor. Liu has been serving as a Lidar Scientist of the University of Wyoming (USA), responsible for the on-board atmospheric detection Lidar systems on the KingAir aircraft. Liu has led and completed various research and development projects related to lidar systems. Currently, his main focus is on long-distance single-photon detection and active-passive composite detection.