# Article information:

A high-precision detection method for laser time transfer based on a single-photon avalanche detector array - PubMed  
<https://pubmed.ncbi.nlm.nih.gov/36182477/>

# Article summary:

1. This paper presents a high-precision detection method for laser time transfer based on a single-photon avalanche detector array.

2. The SPAD array device is capable of providing greater performance than the single-pixel SPAD commonly used in laser time transfer systems.

3. This method provides 2.4 ps root mean square precision and 0.25 ps over an averaging time of 1000 s TDEV, making it suitable for high-precision laser time transfer applications such as space-ground optical clocks.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is reliable and trustworthy, as it is published in a reputable journal (Rev Sci Instrum) and cites relevant research materials from other sources (e.g., IEEE Photonics Technol Lett). The authors provide evidence to support their claims, such as experimental results demonstrating the improved performance of the SPAD array compared to the single-pixel SPAD. Furthermore, they discuss potential applications of this detection method, such as its use in space-ground optical clocks, which further adds to its credibility.

The article does not appear to be biased or one-sided; rather, it presents both sides of the argument fairly and objectively by discussing both the advantages and limitations of using a SPAD array for laser time transfer applications. Additionally, there are no unsupported claims or missing points of consideration; all claims are backed up with evidence from experiments or other sources. There are also no promotional content or partiality present in the article; instead, it focuses solely on presenting facts and data related to its topic without any bias towards any particular viewpoint or opinion. Finally, possible risks associated with using this detection method are noted in the article; thus, overall this article can be considered reliable and trustworthy.

# Topics for further research:

* Single-photon avalanche diode (SPAD) array
* Laser time transfer applications
* Space-ground optical clocks
* Photon detection efficiency
* Time-of-flight measurements
* Quantum key distribution systems

# Report location:

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