# Article information:

Compact and ultra-efficient broadband plasmonic terahertz field detector - PubMed  
<https://pubmed.ncbi.nlm.nih.gov/31804476/>

# Article summary:

1. A new fiber-coupled, monolithic plasmonic terahertz field detector has been developed on a silicon-photonics platform with a detection bandwidth of 2.5 THz and a 65 dB dynamical range.

2. The high efficiency of the scheme relies on the extreme confinement of the terahertz field to a small volume of 10-8(λTHz/2)3.

3. The approach results in an extremely short interaction length of only 5 μm, which eliminates the need for phase matching and shows the highest conversion efficiency per unit length up to date.

# 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 generally reliable and trustworthy, as it provides detailed information about the development of a new fiber-coupled, monolithic plasmonic terahertz field detector on a silicon-photonics platform with a detection bandwidth of 2.5 THz and a 65 dB dynamical range. The authors provide evidence for their claims by providing figures that illustrate how the device works and how it achieves its high efficiency through extreme confinement of the terahertz field to a small volume and an extremely short interaction length that eliminates the need for phase matching.

The article does not appear to be biased or one-sided in its reporting, as it presents both sides equally without any promotional content or partiality towards either side. It also does not appear to contain any unsupported claims or missing points of consideration, as all claims are backed up by evidence provided in figures and descriptions throughout the article. Furthermore, there are no unexplored counterarguments or missing evidence for any claims made in the article, as all claims are supported by evidence provided in figures and descriptions throughout the article. Additionally, possible risks associated with using this device are noted throughout the article, making it clear that further research is needed before this device can be used safely and effectively in real world applications.

# Topics for further research:

* Plasmonic terahertz field detection
* Silicon-photonics platform
* Terahertz field confinement
* Phase matching in terahertz detection
* Plasmonic terahertz field detector applications
* Plasmonic terahertz field detector safety

# Report location:

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