



TERAHERTZ RADIATION DETECTORS BASED ON THIN FILMS OF NON-CENTROSYMMETRIC LAYERED TOPOLOGICAL SEMIMETALS

WARF: P230436US01

Inventors: Jun Xiao, Ying Wang, Daniel van der Weide

Overview

The feasibility of THz technologies, including high-speed communication, has been curtailed by the problem of high path loss. Theoretically, this hurdle could be overcome if THz receivers were sufficiently efficient to capture weak and rapidly modulated THz signals, even in their significantly decayed state. Unfortunately, state-of-the-art THz detectors lack the ability to provide sensitive, broadband, and fast THz detection simultaneously.

The Invention

UW-Madison researchers have designed Terahertz (THz) radiation detectors based on the rectification of a THz signal via the non-linear Hall effect in thin films of non-centrosymmetric layered topological semimetals. The THz detectors, which enable sensitive, broadband, and fast room-temperature terahertz radiation detection, can be fabricated with electrostatic gates to tune the terahertz rectification.

Additional Information

For More Information About the Inventors

- [Daniel van der Weide](#)

Tech Fields

- [Semiconductors & Integrated Circuits : Components & materials](#)

For current licensing status, please contact Michael Carey at mccarey@warf.org or 608-960-9867