Multi- and Hyperspectral Passive Infrared (IR) Sensors for Safe Threat Detection

Department of Physics
Investigator: Juan Meléndez Sánchez

Summary/Characteristics

Researchers from Universidad Carlos III de Madrid, belonging to the LIR group (Infrared Laboratory), have developed multi- and hyperspectral IR analysis techniques for passive (emitter-free) and safe (low false-alarm rate) threat detection.

Specifically, the approach focuses on developing sensors and spectral processing for scenario classification that optimizes the distinction of threats from the background, decoys, or spurious emission sources, drastically reducing the false-alarm rate.

Potential partners are sought to co-develop the technology and bring it to market.

Innovative Aspects

- Modularity: It is possible to configure a detection model and a sensor specifically dedicated to each type of threat.
- Ability to characterize each potential threat according to spectral features, as well as its contrast with the background.
- Reduction of the false-alarm rate

Competitive Advantages

- Drastic improvement in the probability of early threat detection compared to current systems.
- Capability for IR code simulation and radiometric experimental validation.
- Detection models can be specifically configured for each expected type of threat

Technology readiness level:

In the development phase. Prototype available and tested under laboratory conditions. TRL 6.

Intellectual and Industrial Property Status:

Industrial secret– *know how*

Type of collaboration sought:

Collaborations in the form of: Manufacturing Agreements, Licensing Agreements, or Commercialization Agreements with technical support to develop and market the technology. Potential partners include companies that manufacture IR sensors or operate in sectors such as protection, defense, or industrial control.

Contacto: Servicio de Apoyo al Emprendimiento y la Innovación (SEI)
| +34 91 624 40 20/22 | transferencia@uc3m.es

uc3m | Universidad Carlos III de Madrid
Vicerrectorado de Investigación y Transferencia
Servicio de Apoyo al Emprendimiento y la Innovación