

PRIORITY CERTIFICATE

Certificate No.: PC2018/785456

Granted: May 24, 2018

Discovery of a new far-infrared absorption band and an idea for a far-infrared detector

Sanjay P. Kumar & Alice W. Carter

(University of Sussex)

**Academic Priority
Services LLC**

Rank 15 on the list of the most important priority achievements in the field of opto-electronics for year 2018

Priority
Certificate

The Board of Directors of Academic Services Inc. attests that an expert examiner has been commissioned to diligently and competently examine the priority-claims in this priority-certificate and that the examiner has found that the claimants herein are the first to perform the medical procedures claimed in this priority-certificate.

Thereby, a Priority-Certificate has been granted today May 24, 2018 attesting that Sanjay P. Kumar and Alice W. Carter are the first to make the discoveries claimed in this priority-certificate.

President of Academic Services Inc.



Claim 1: We claim the discovery of a new optical absorption band in the far-infrared region at the InSb interface of the InAs/GaSb hetero-structures,

wherein the infrared photons absorption is due to the electronic transitions between valence band states in the GaSb and conduction band states in the InAs;

wherein the energy of the absorbed photons is from about 20meV to 50meV at room temperature;

wherein the energy of the absorbed photons can be adjusted from about 10meV to about 200meV in magneto-optical transmission experiments conducted between 1.2T to 3T.

... see all claims & specification on next pages