

PRIORITY CERTIFICATE

Certificate No.: PC2018/345250

Granted: May 21, 2018

Discovery of a new gallium-nitride low temperature crystalline structure having new and unusual electronic properties

**Academic Priority
Services LLC**

John C. Simpson & Mark A. Harris

(Electronics Corp.)

Rank 12 on the list of the most important priority achievements in the field of solid state physics for year 2018



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 21, 2018 attesting that John C. Simpson and Mark A. Harris are the first to make the discoveries claimed in this priority-certificate.

President of Academic Services Inc.

A handwritten signature in dark ink, appearing to read "John Hancock".

Claim 1: We claim the discovery of a previously unknown form of Gallium Nitride having a previously unknown crystalline structure and exhibiting strong conductivity anisotropy, wherein the crystalline structure has the following characteristics:

the lattice constant of the crystalline structure is 0.62 nm;

the distance between a Gallium atom and the closest Nitride atom along x axis is 0.3nm;

the distance between a Gallium atom and the closest Nitride atom along z axis is 0.37 nm; and

the distance between Gallium atom and closest Nitride atom along y axis is 0.5nm;

wherein the crystalline structure is stable at temperatures lower than 162K; and

wherein the conductivity of the GaN along the x axis is about 5000 times the conductivity along the y axis.

... see all claims & specification on next pages