

Joint Symposium 2015
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Invited Speech: **Invention of Blue LED, Laser and Solid State Light**



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Nobel Prize Winner in Physics in 2014

About the Speaker

Shuji Nakamura was born in Ehime, Japan on May 22, 1954. He obtained his master's and Ph.D. degrees in engineering from the University of Tokushima in 1979 and 1994, respectively. He succeeded in growing high quality InGaN layers exhibiting blue emission in 1992, a world's first. He then succeeded in inventing the first high efficient double-hetero structure blue light emitting diode (LED) using an InGaN emitting layer and commercialized them in 1993. He received the Nobel Prize in Physics in 2014 due to this invention.

Abstract

The development of high brightness blue LEDs and blue laser diodes required many breakthroughs of III-Nitride growth, p-type conductivity control and device structures using InGaN/GaN double heterostructures. First, the speaker will discuss the history and background story of the key scientific issues solved in order to realize high efficiency solid state lighting. The fundamental discovery of high quality p-type doping by removing hydrogen passivation, and the role of the InGaN/GaN double heterostructure in achieving high brightness blue LEDs and Laser Diodes will be described.