

Schottky Junction Diode Based Thermal Neutron Detector

Abstract:

The proposed multi-stack Schottky diode based thermal neutron detection technique is three step processes to detected thermal neutron. In the 1st step neutron are transmitted to charged ions in the Neutron Converting Layer (NCL). In the 2nd step the generated light ions passing through but heavy ions are stopped by the Integrated Heavy Ion Selective Screening Layer (IHISL). Finally the light ions reach to Schottky diode and generate electrical signal in the Schottky diode. Depending on the thickness of Integrated Heavy Ion Selective Screening Layer (IHISL) it can also stop lighter ions. Optimized thickness of the Integrated Heavy Ion Selective Screening Layer (IHISL) can only stop heavy ions without significant compromise of lighter ion energy loss and prevent degradation of metal semiconductor Schottky junction diode. Optimization is done using the fundamental concept of ion implantation.

Patent application no. 3736/MUM/2015