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Patent Search

Invention Title	ZNO/GeOX/Ge HETEROSTRUCTURE DEVICE AND THE PROCESS OF PREPARING THE SAME
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Abstract:

The present disclosure relates to a process for producing ZnO/GeOx/Ge Heterostructure device for Broadband Photodetection. The steps of the process include drop (Zn) salts precursor solution on a two-layered Ge/SiO₂/Si substrate and thereby depositing Zinc Oxide (ZnO) film over the two-layered Ge/SiO₂/Si substrate by spin coating followed by one-step annealing to form the ZnO/GeOx/Ge/SiO₂/Si heterostructure. Further, the present disclosure also relates to an Ag/ZnO/GeOx/Ge heterostructure broadband photodetection.

Complete Specification

Description:FIELD OF INVENTION:

[001] The present disclosure to a field of broadband photo detection. The present disclosure particularly relates to a process for developing ZnO/GeOx/Ge Heterostructure device for Broadband Photodetection.

BACKGROUND OF INVENTION:

[002] The market for photodetectors, estimated to be worth of USD 2.69 billion by 2028, is anticipated to expand annually with a growth rate of 9.56% between 2023 and 2028. Over this period, the growing global use of fiber optic communication systems is predicted to have an impact on the growth of the photodetector market. Benefits of photodetectors, including their extended lifespan, low resistance, low noise, and robust spectral response, are also expected to fuel the market's expansion. The market is projected to grow because of the increasing prevalence of photodetectors across a range of industries, the sharp rise in consumer electronics sales, and the growing popularity of Internet of Things (IoT) devices. It is also anticipated that the expanding market for IoT devices will drive the growth of the photodetector market. Claims:We Claim:

1. A process for producing ZnO/GeOx/Ge heterostructure device for broadband photodetection, comprising the steps of:
 dropping Zinc (Zn) salt precursor solution on a two-layered Ge/SiO₂/Si substrate; and
 depositing Zinc Oxide (ZnO) film over the two-layered Ge/SiO₂/Si substrate by spin coating followed by one-step annealing to form the ZnO/GeOx/Ge/SiO₂/Si heterostructure.

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