



Contribution ID: 304
compétition)

Type: **Poster (Student, In Competition) / Affiche (Étudiant(e), inscrit à la**

p-Silicon /ZnO nanowire photodiodes with transparent silver nanowire network top electrodes

Wednesday 18 June 2014 19:08 (2 minutes)

Highly conductive and transparent silver nanowire networks have been applied as top electrode for p-Si/ZnO nanowire heterojunction photodiodes.

Faster transient response and higher responsivity than the reference sample without deposition of silver nanowires has been obtained, which is attributed to improved carrier collection and transport efficiency through the silver nanowires network. The observed voltage polarity dependence of spectral response was due to the high valance band offset in the interfacial region of ZnO and p-Si substrate.

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Session Classification: DAMOPC Poster Session with beer (6) / Session d'affiches DPAMPC, avec bière (6)

Track Classification: Division of Atomic, Molecular and Optical Physics, Canada / Division de la physique atomique, moléculaire et photonique, Canada (DAMOPC-DPAMPC)