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Electrical characteristics of Pd Schottky contacts on ZnO and AZO nanoparticles

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Abstract content
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Aluminium (Al) doped Zinc oxide (ZnO), AZO, of different Al atomic percentages was prepared by a sol-gel method and deposited on microscope glass plates (SiO2) and a-Si/SiO2 substrates. Resistivity and Hall measurements were conducted on the samples. Palladium (Pd) contacts were deposited on the AZO nanoparticles by resistive evaporation. Current–voltage (I–V) and capacitance–voltage (C–V) measurements were performed on Pd /ZnO nanoparticles Schottky contacts at room temperature (RT) and in the range 60–300 K. The ideality factor (n), barrier height (ΦB) and carrier concentrations (ND) were calculated from the forward bias characteristics. Using temperature dependent I—V characteristics, the barrier height was observed to increase with increasing temperature. The C–V barrier height decreases with temperature increase.

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