

Study on low resistance electrical contacts for SnO₂ nanowire devices

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In recent years, semiconductor nanowires are being widely investigated for state-of-the-art nanoscale devices because they can be grown and doped easily like bulk semiconductor materials. Among these nanowire materials, SnO₂ nanowire is suitable for optical and sensor applications due to its unique properties such as wide band gap (3.6 eV) and high surface-to-volume ratio. However, bulk metal-SnO₂ nanowire contact is one of the barriers to improve the performance of applications based on nanoscale devices. This work is to optimize electrical contacts that facilitate the formation of good contacts between Ti/Au metal and SnO₂ nanowires. Current-voltage characteristics of the optimized electrical contact show that the high-quality ohmic contacts are formed.