

# Development and characterization of single wall carbon nanotubes (SWCNT) & Graphene to be served as transparent cathode

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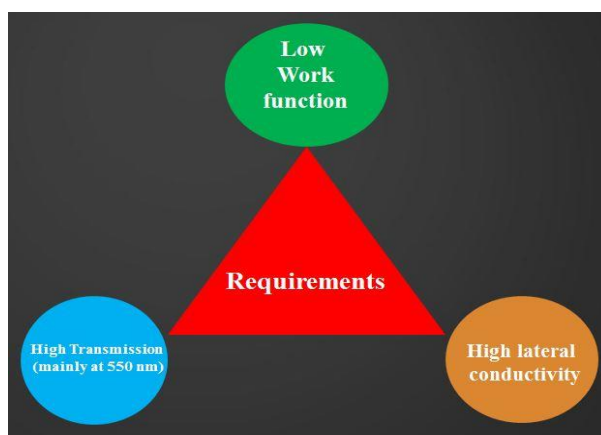
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Many different materials have been studied so far for their potential to serve as a transparent cathode for light emitting devices. Good transparent cathode should possess three enabling characteristics shown in figure 1: 1) Transparent to the relevant photon wavelengths, 2) high current conductivity. 3) Low work-function in order to inject the electron to the adjacent layer with minimal barrier. In this work, we propose to study the feasibility of CNT or Graphene to be served as transparent cathodes for organic light emitting diodes (OLED) focusing on their work-function reduction. This study will show that optimization of the above three parameters can be achieved in order to provide with a good transparent cathode. The emphasis of the research was on reducing the work function using different n-type dopants in order to reduce the work function as can be seen by the UPS measurement in figure 2, while optimizing the electrical conductivity and the transparency.

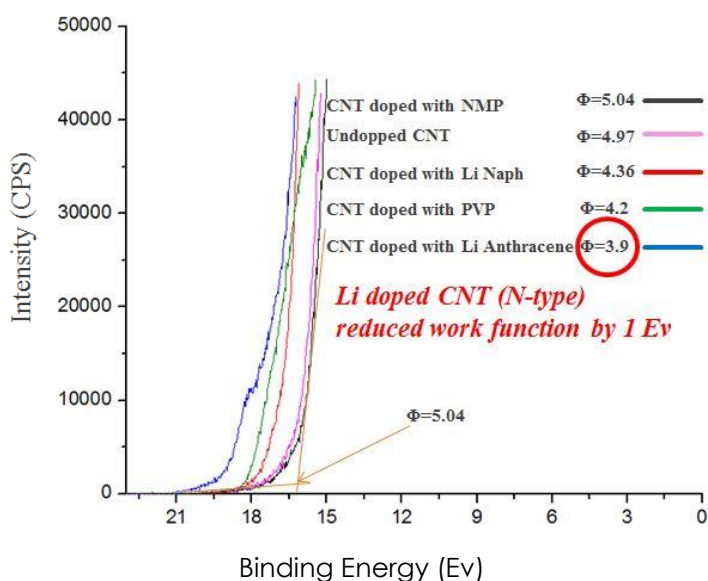
References

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Figures



**Figure 1:** Diagram of requirements for transparent cathode.



**Figure 2:** Measurement of Photoemission cut-off for UPS spectra of SWCNT with and without doping, which yield the work function.