

Abstract Submitted
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Chemical Vapour Deposition of Graphene with Re-useable Pt and Cu substrates for Flexible Electronics SHUMAILA KARAMAT, Department of Physics, Middle East Technical University, Ankara Turkey 06800, SELDA SONUSEN, Faculty of Engineering and Natural Sciences, Sabanci University, Istanbul, Turkey 34956, UMIT CELIK, NanoMagnetics Instruments Ltd., Ankara, Turkey, YIGIT UYSALLI, AHMET ORAL, Department of Physics, Middle East Technical University, Ankara Turkey 06800 — Graphene has gained the attention of scientific world due to its outstanding physical properties. The future demand of flexible electronics such as solar cells, light emitting diodes, photo-detectors and touch screen technology requires more exploration of graphene properties on flexible substrates. The most interesting application of graphene is in organic light emitting diodes (OLED) where efforts are in progress to replace brittle indium tin oxide (ITO) electrode with a flexible graphene electrode because ITO raw materials are becoming increasingly expensive, and its brittle nature makes it unsuitable for flexible devices. In this work, we grow graphene on Pt and Cu substrates using chemical vapour deposition (CVD) and transferred it to a polymer material (PVA) using lamination technique. We used hydrogen bubbling method for separating graphene from Pt and Cu catalyst to reuse the substrates many times. After successful transfer of graphene on polymer samples, we checked the resistivity values of the graphene sheet which varies with growth conditions. Furthermore, Raman, atomic force microscopy (AFM), I-V and Force-displacement measurements will be presented for these samples.

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