

# Graphene/YBCO Hybrid Nanosheets Prepared by Matrix Assisted Pulsed Laser Evaporation

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## Abstract

Hybrid graphene nanosheets by depositing yttrium barium copper oxide (YBCO) superconductor particles were developed by using the matrix-assisted pulsed laser evaporation (MAPLE), a free-contamination method. With increasing irradiation time, the amount of YBCO nanoparticles deposited on graphene is increased. In addition, the microstructures and elemental composition of YBCO nanoparticle deposited on graphene sheet by the MAPLE process were studied in terms of particle size and shape as a function of the deposition time/irradiation time ( $t$ ). It is noted that the shape and size of the YBCO nanoparticles are more uniform with increasing  $t$ . When  $t$  increases to 2 hours, the average diameter of the spherical YBCO nanoparticles deposited on graphene sheets is around  $50 \pm 10$  nm. This study demonstrates that MAPLE is a suitable process for depositing inorganic superconductor nanoparticles on graphene sheets without additional chemical agents.

## Figures

