Electronic Supplementary Material (ESI) for RSC Advances.

Solution based Rapid Synthesis of $AgCuO_2$ at Room Temperature

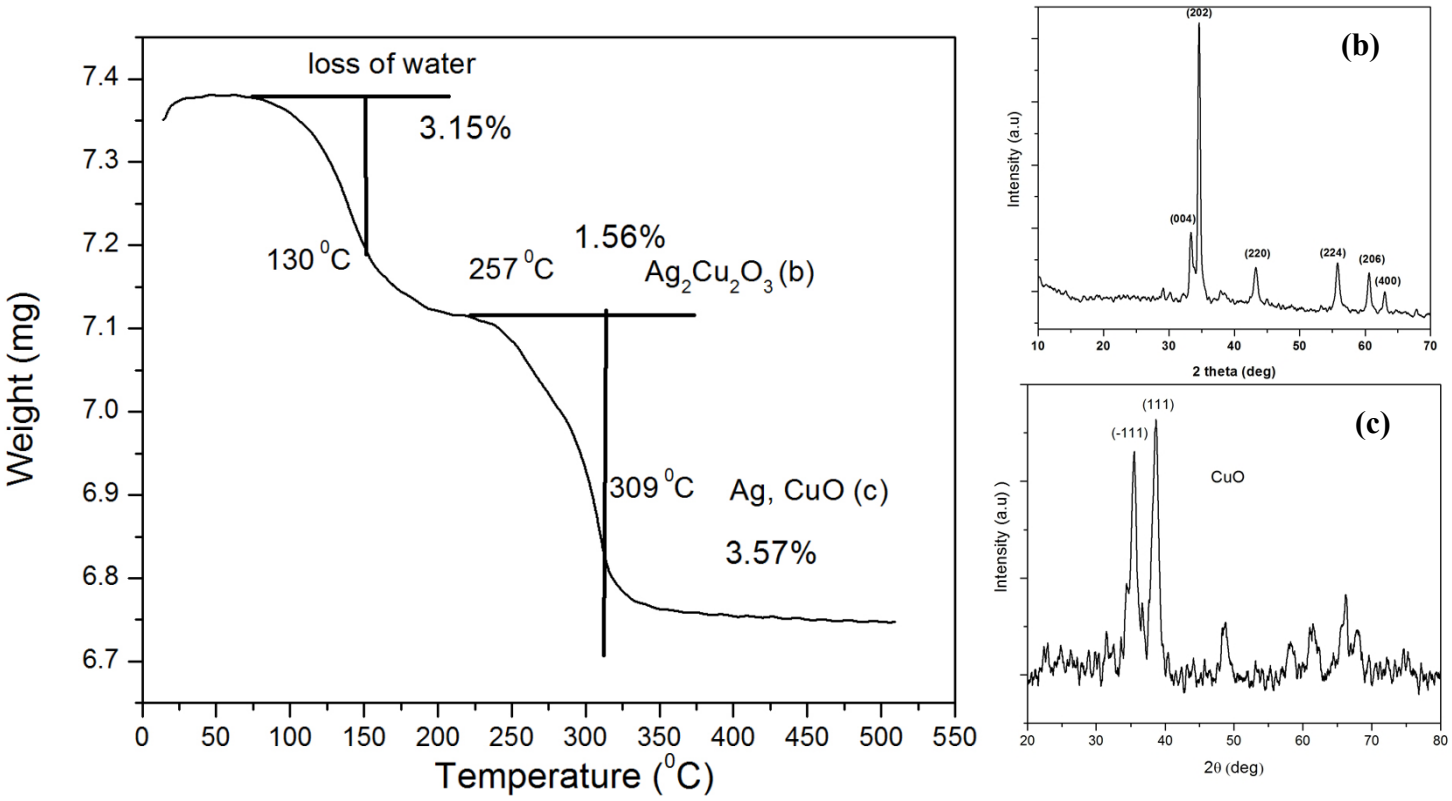

Figure S1. A thermogram of $AgCuO_2$ harvested at fifth minute. The intermediate forming at 257°C has been identified to be $Ag_2Cu_2O_3$ (b) by X-ray powder diffraction. The final residue consists of Ag and CuO confirmed by XRD (c).

Theoretically, $AgCuO_2$ is predicted to be a low band gap material (~ 1.5 eV).[12] This is attributed to the overlap between Cu 3d and O 2p orbitals.[29] Our experimental value may have contributions from the particle size effect as well as excess oxygen.

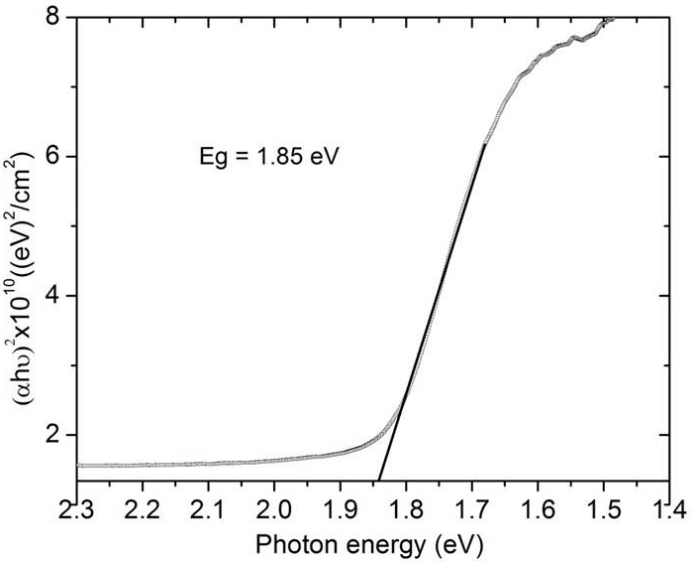

Fig. S2 .Squared absorption coefficient of $AgCuO_2$ versus photon energy.

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29. C. N. R. Rao, P. Ganguly, M. S. Hegde and D. D. Sarma, *J. Am.Chem. Soc,* 1987, **109,** 6893-6895.