**Facile synthesis of monodisperse AgCu alloy nanoparticles with synergistic effect against oxidation and electromigration**

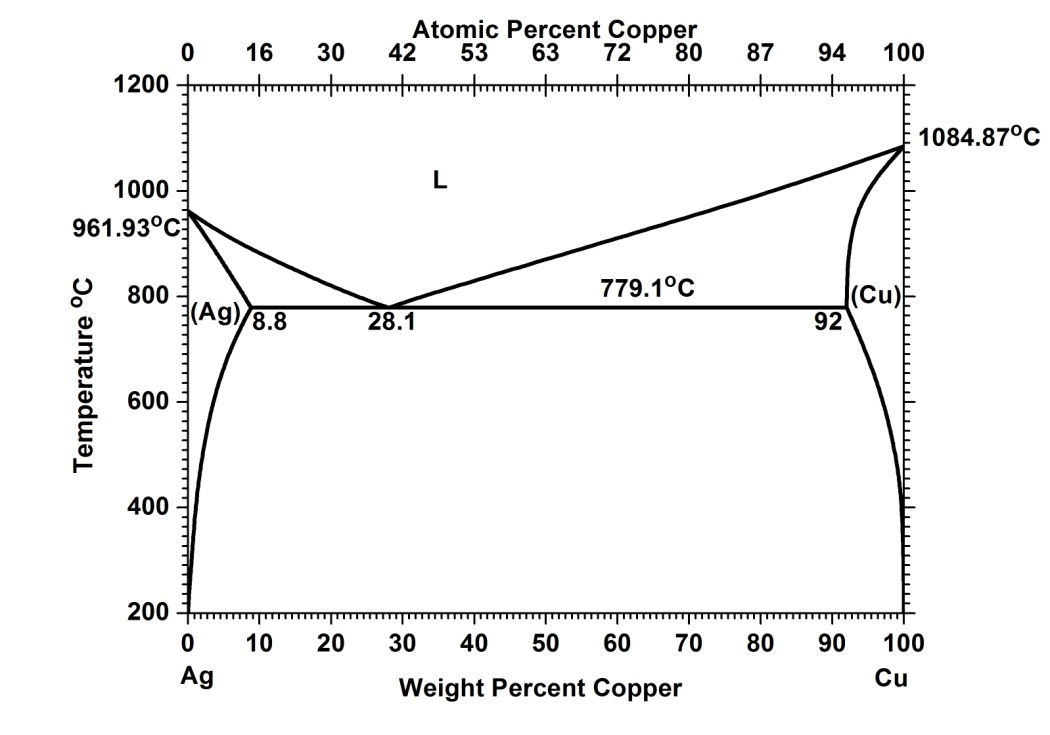
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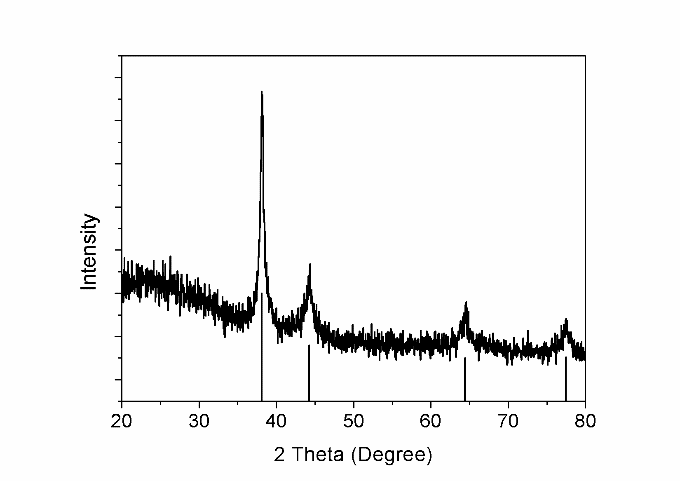
\*Corresponding author

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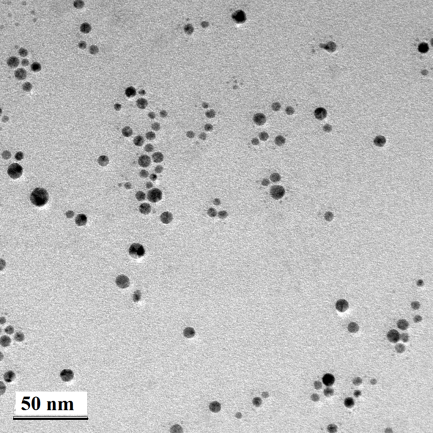
**Supplementary Material**



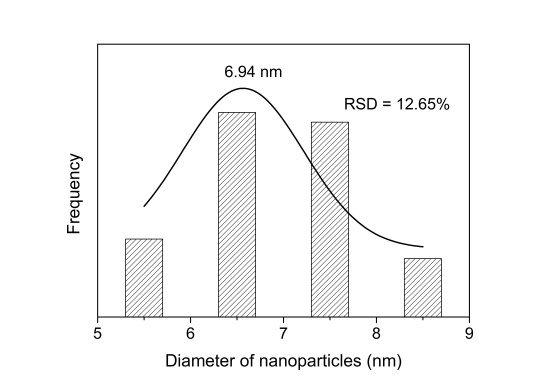
**Fig**. **S1** Phase diagram of Ag-Cu bimetallic system.



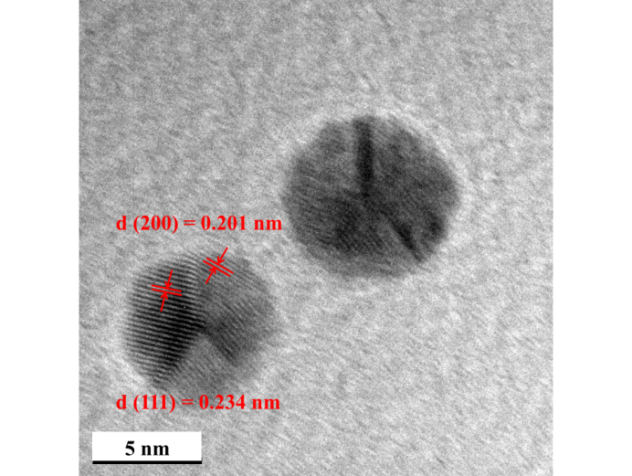
**(a)**



**(b)**

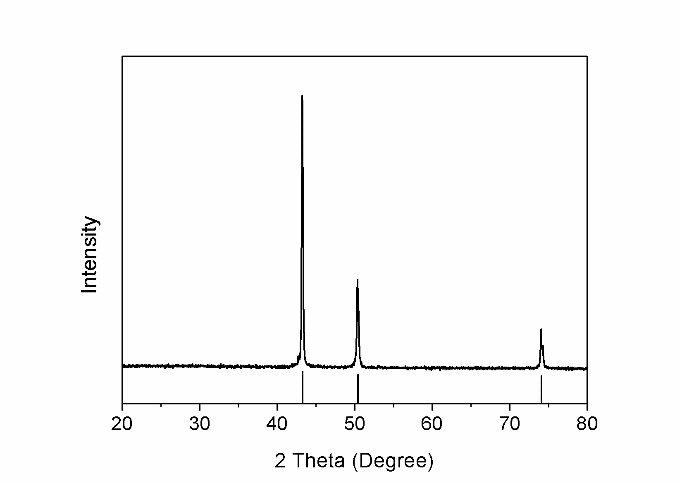


**(c)**

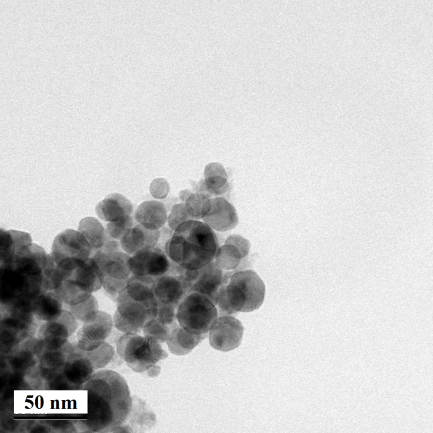


**(d)**

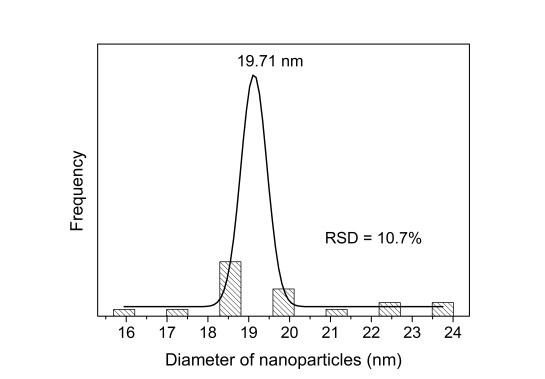
**Fig. S2** (a) XRD pattern; (b) TEM image; (c) relative size distribution histograms and (d) HRTEM image of Ag NPs.



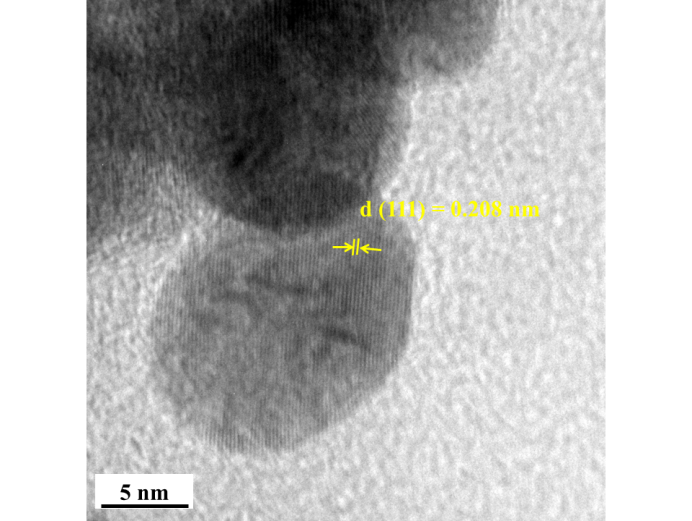
**(a)**



**(b)**

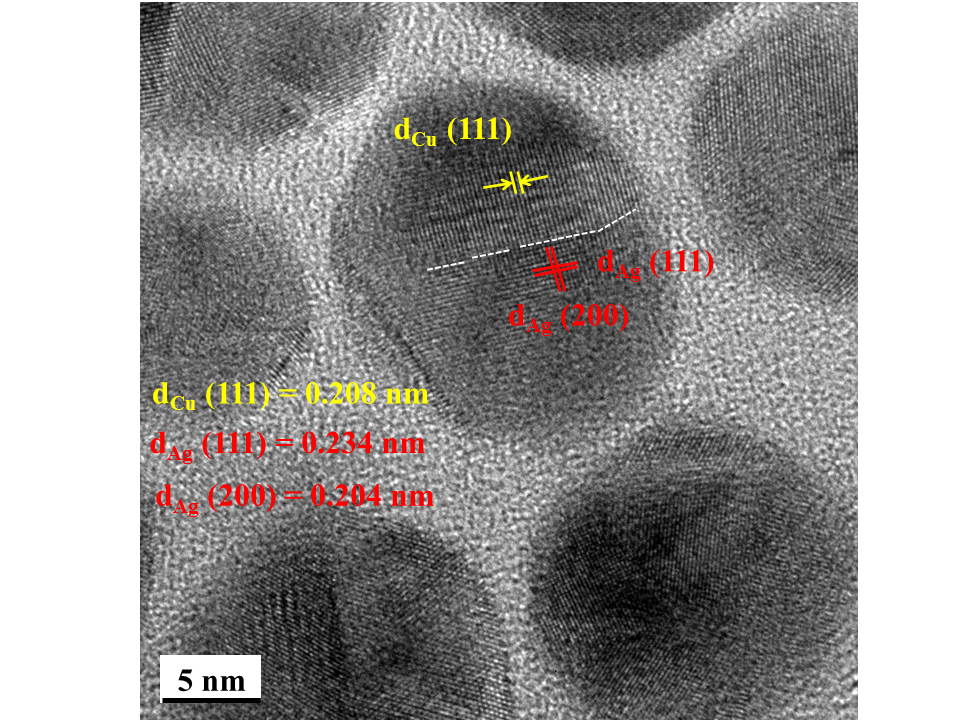


**(c)**

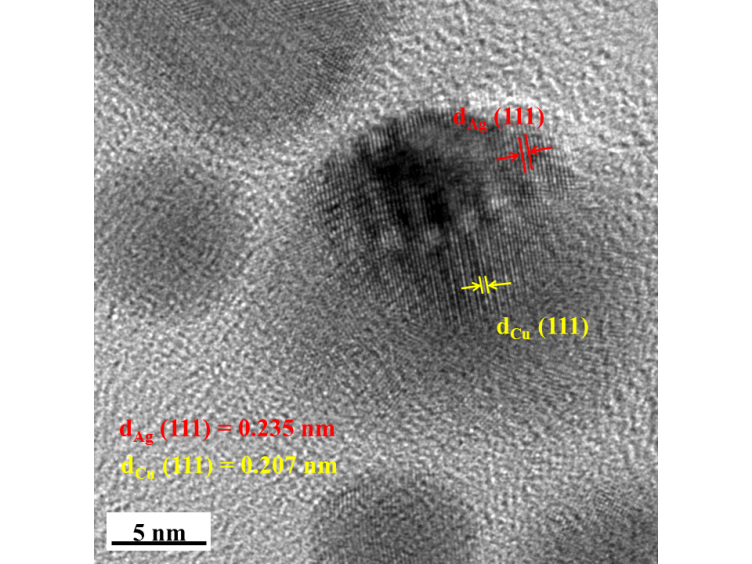


**(d)**

**Fig. S3** (a) XRD pattern; (b) TEM image; (c) relative size distribution histograms and (d) HRTEM image of Cu NPs.

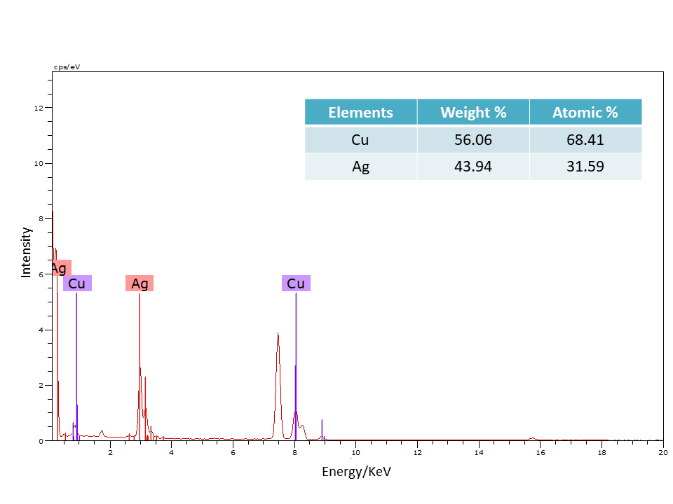


**Fig.** **S4** HRTEM image of sample Ag7Cu3.

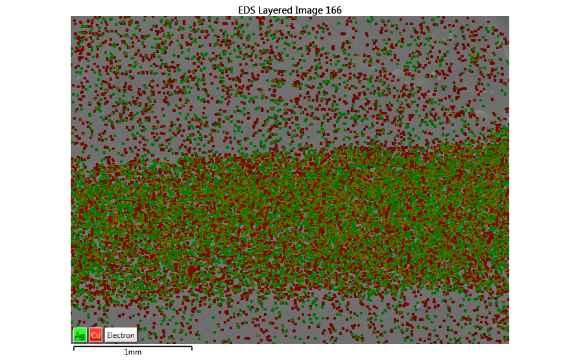


**(a)**

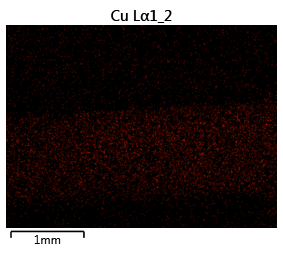
**(b)**



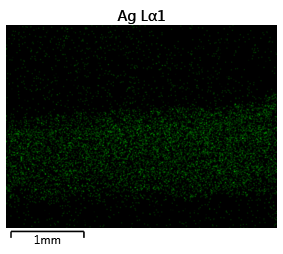
**Fig**. **S5** (a) HRTEM image of sample Ag9Cu1 and (b) TEM-EDS spectrum of the particle measured.



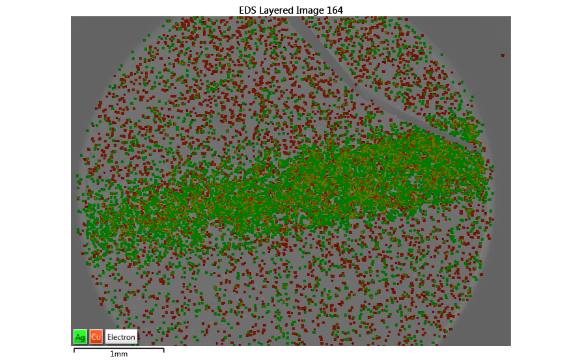
**(a)**



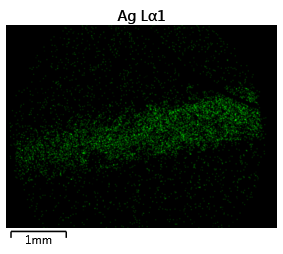
**(b)**



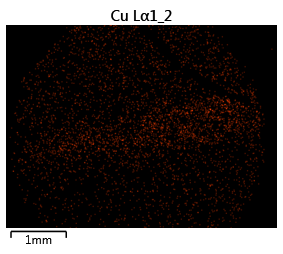
**(c)**



**(d)**

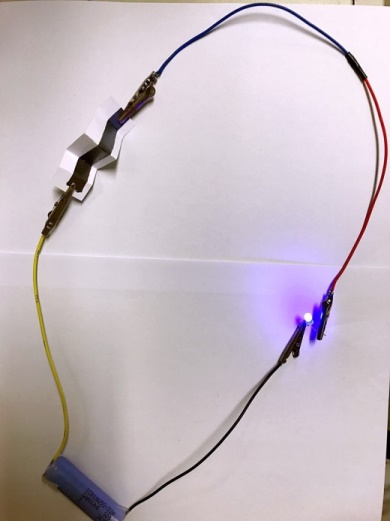


**(e)**



**(f)**

**Fig. S6** EDS mapping of sample Ag5Cu5 (a) metal line, (b) element Ag and (c) element Cu; sample AgCu mixture (d) metal line, (e) element Ag and (f) element Cu



**Fig**. **S7** Optical images of Ag5Cu5 conductive lines with five folds