

Supporting Information

Enhanced Thermal Conductivity of Copper Nanofluids: The Effect of Filler Geometry

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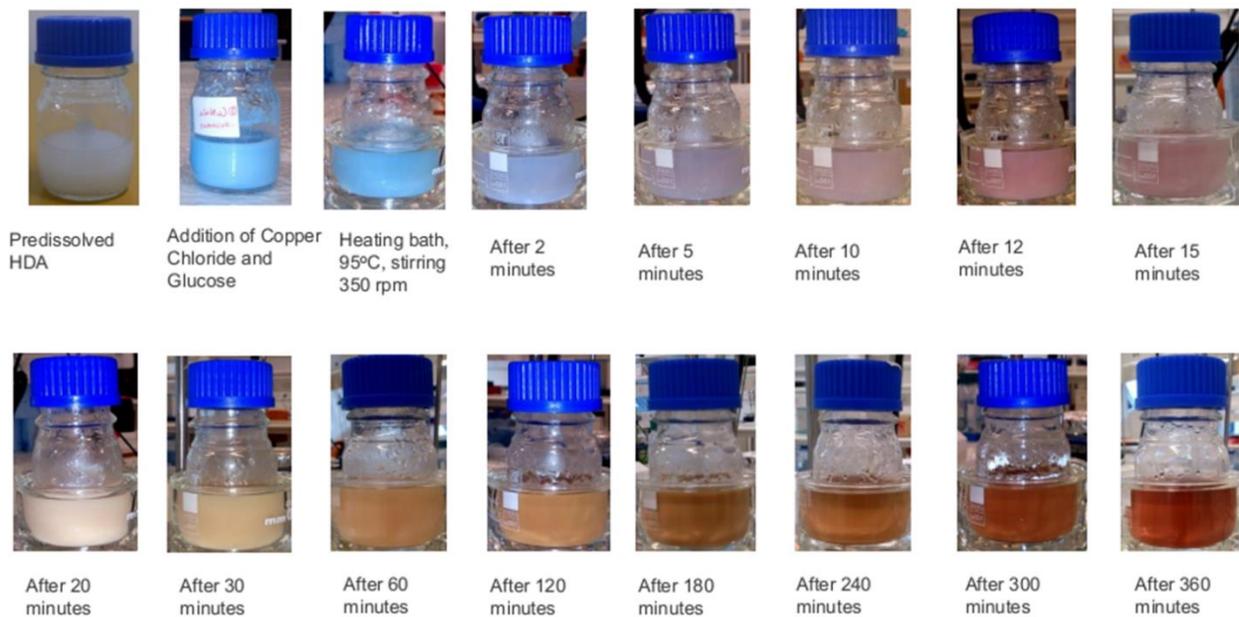


Figure S1: Synthesis of copper nanowires: evolution of the colour of the reaction mixture with time.

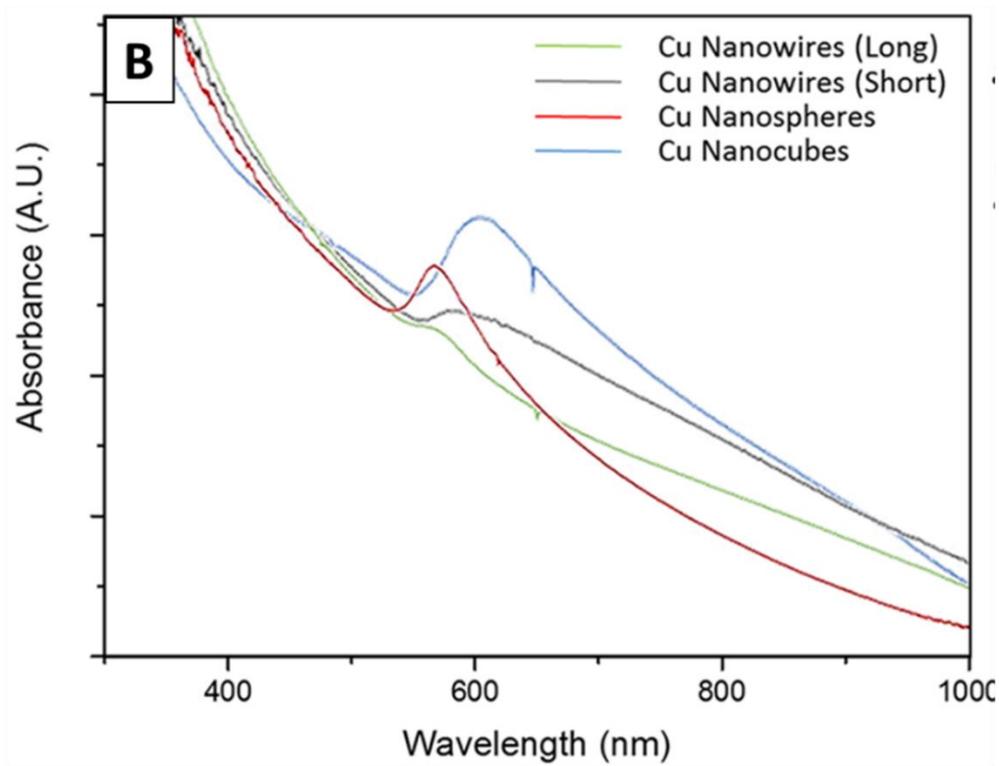
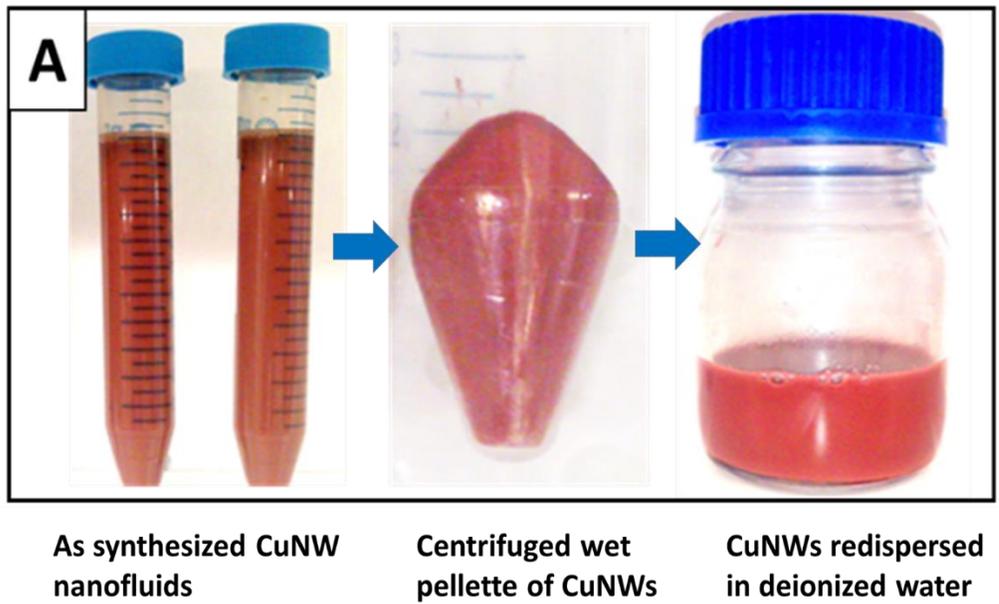


Figure S2: (A) As synthesised, centrifuged wet pellet and redispersed CuNW nanofluid
 (B) UV-Vis absorbance spectra of copper nanomaterials of various shapes.

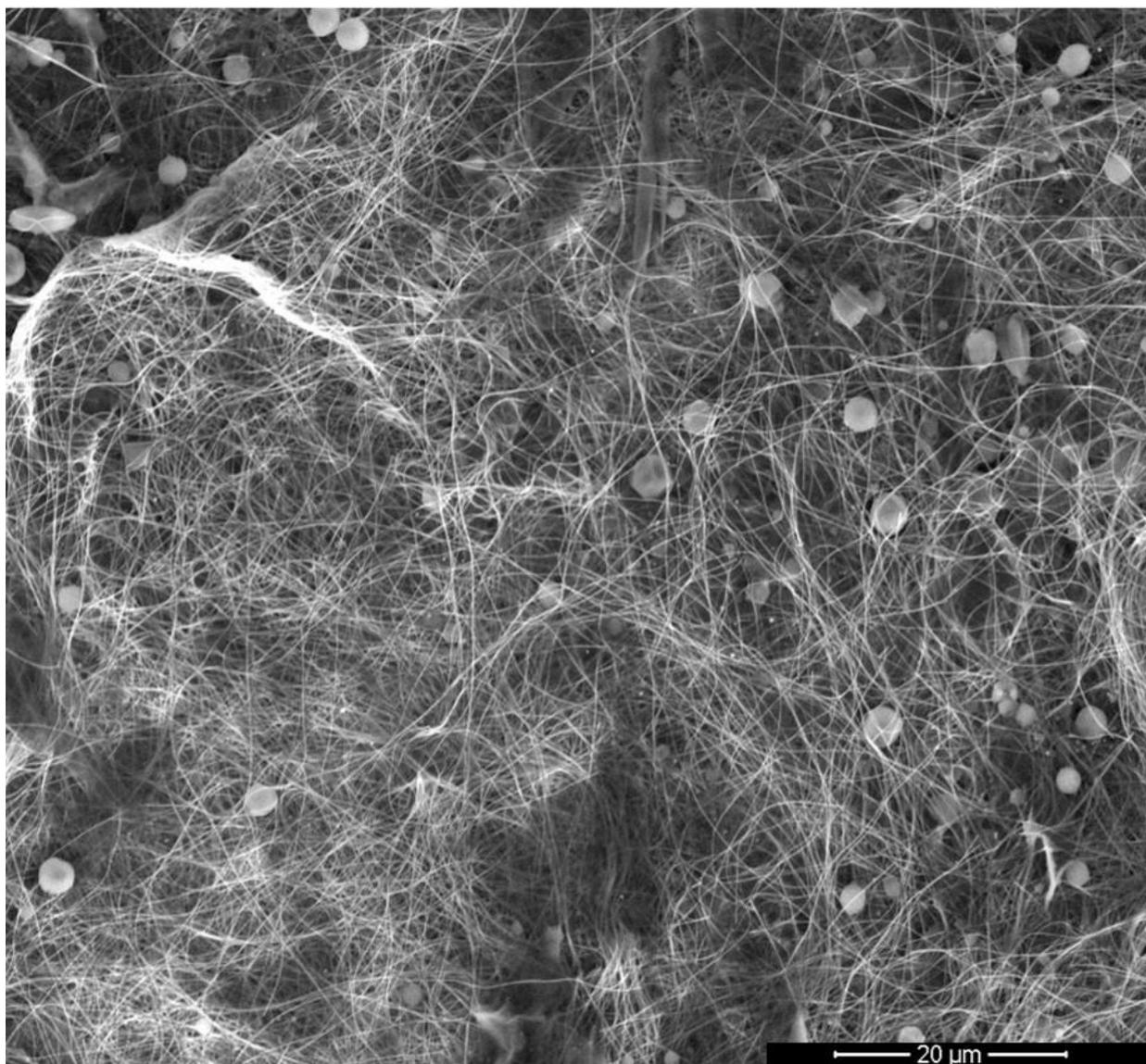


Figure S3: A large area SEM micrograph of copper nanowires showing ultralong nanowires, with random orientation and no formation of bundles.



Figure S4: C-Therm thermal conductivity analyser-modified transient plane source method: Sensor assembly, and sensor assembly with Cu nanofluid sample.

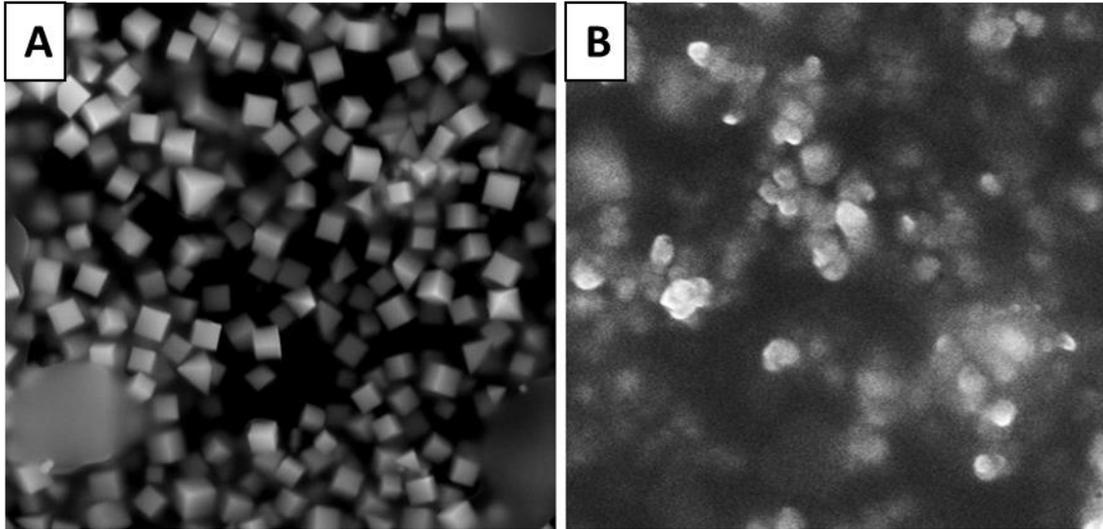


Figure S5: (A) Micrograph of Cu nanosphere based nanofluids showing nanoparticles in form of loose aggregates. (B) Micrograph of Cu nanocubes based nanofluids showing well dispersed nanocubes with NO formation of clusters or loose aggregates

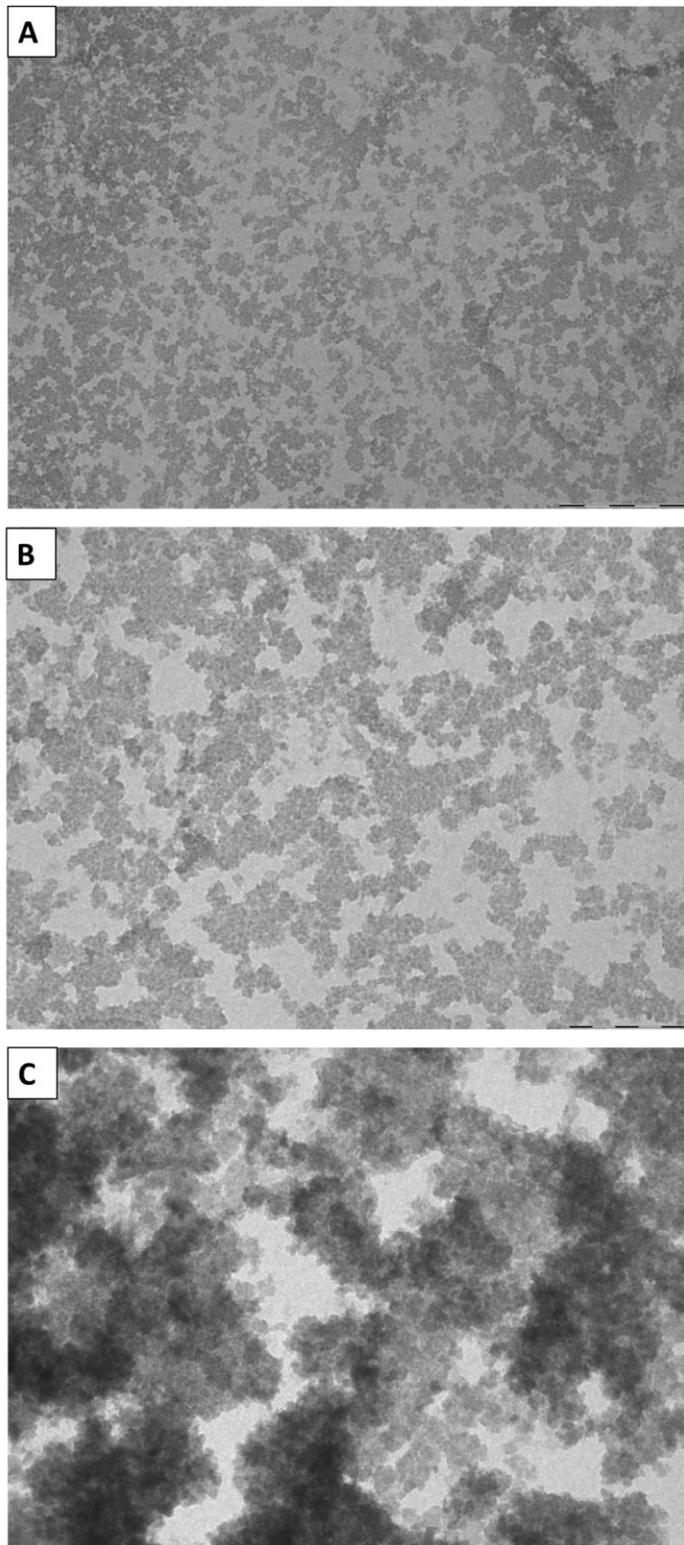


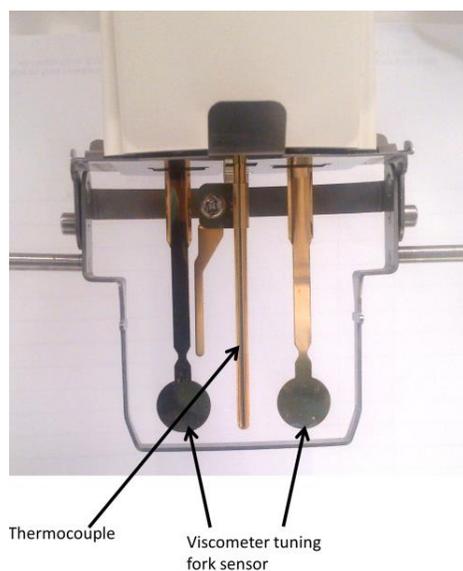
Figure S6: CuNSs nanofluids after (A) first (B) second and (C) third heating cooling cycle between 20°C and 70°C. Scale bars are 500 nm.



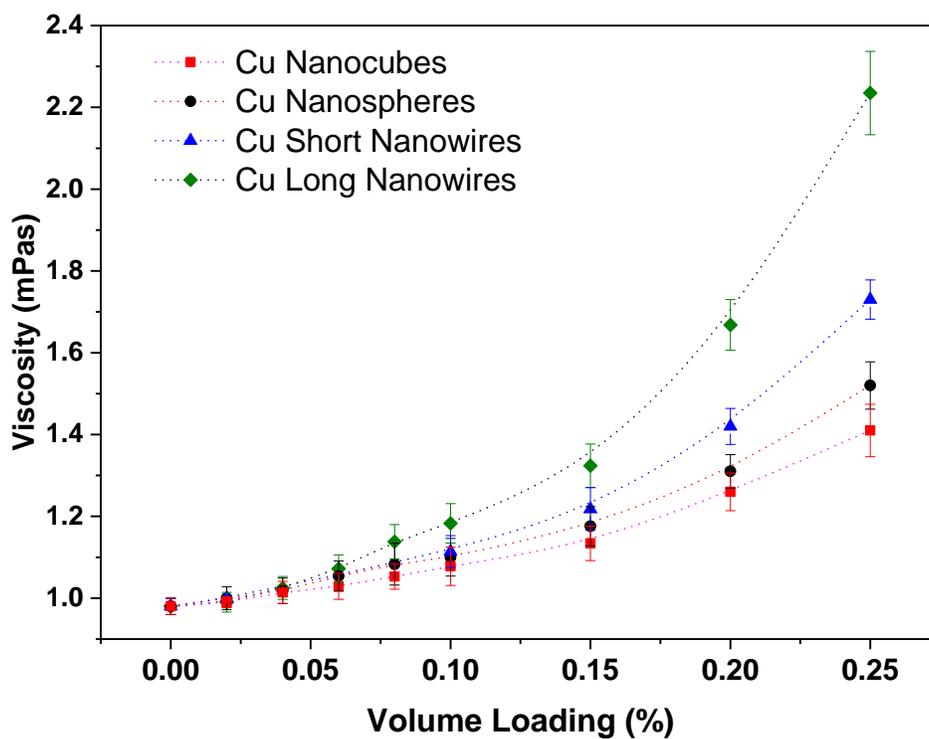
Figure S7: Cu nanowire based nanofluids: After 1 washing (L) and after 2 washings (R). The excess residual HDA is evident from whitish coloured froth in fluid after 1 washing.



Figure S8: Copper nanowire based nanofluid (Left) after 2 washings and re-dispersion with PVP and ascorbic acid and (R) with excessive washings (3-4). The brick red colour of the nanofluid after three washings turned to yellowish brown within a week along with rapid deterioration in thermal conductivity.



(A)



(B)

Figure S9: (A) AND SV-10 viscometer sensor (B) Viscosity of copper nanofluids with respect to temperature for long CuNWs, short CuNWs, CuNSs and CuNCs, at 25°C.