

## **Supplementary Materials**

# **Suitability of copper nitride as a wiring ink sintered by low-energy intense pulsed light irradiation**

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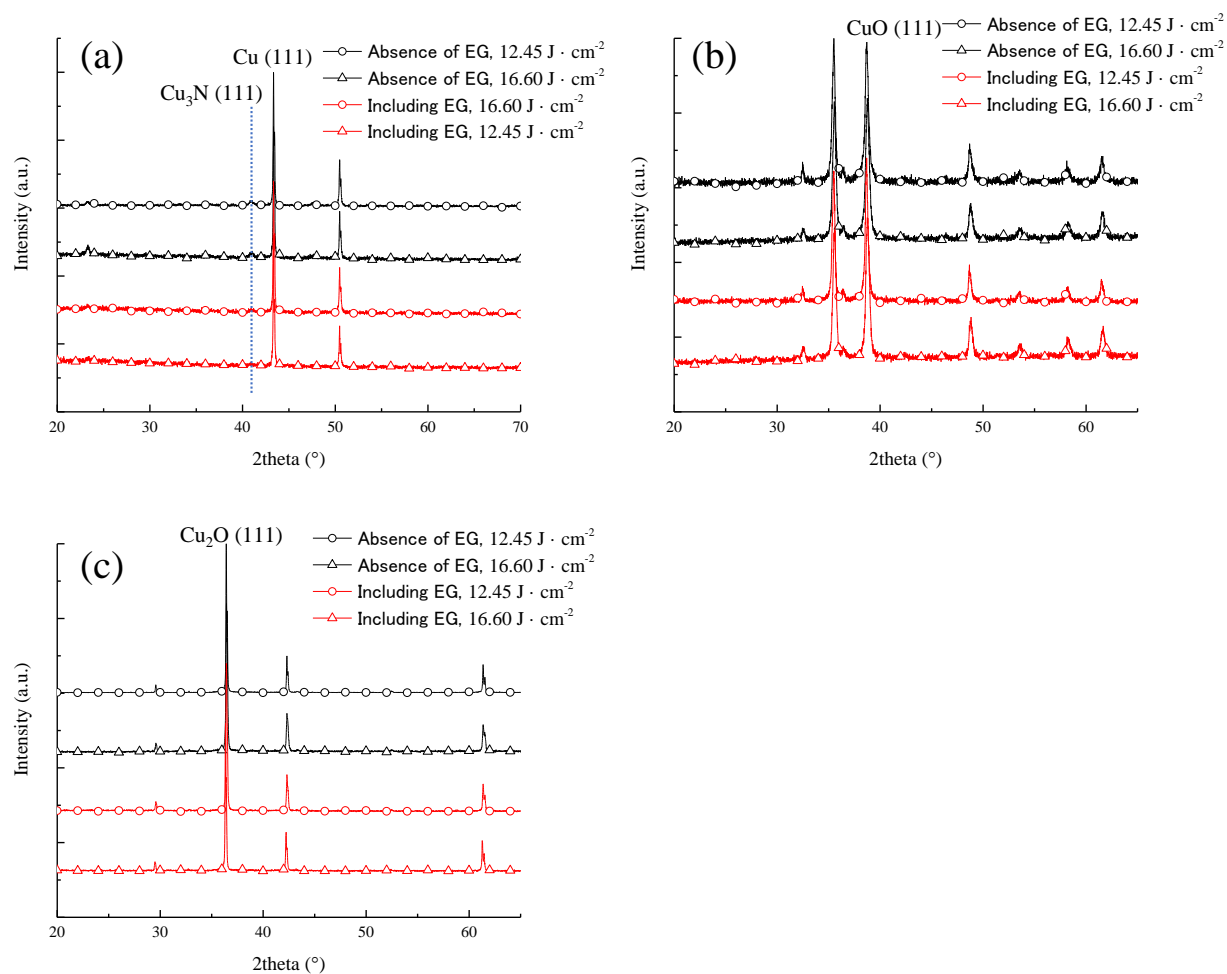


Figure S1. XRD patterns of samples for (a) copper nitride, (b) copper(II) oxide, and (c) copper(I) oxide after IPL sintering.

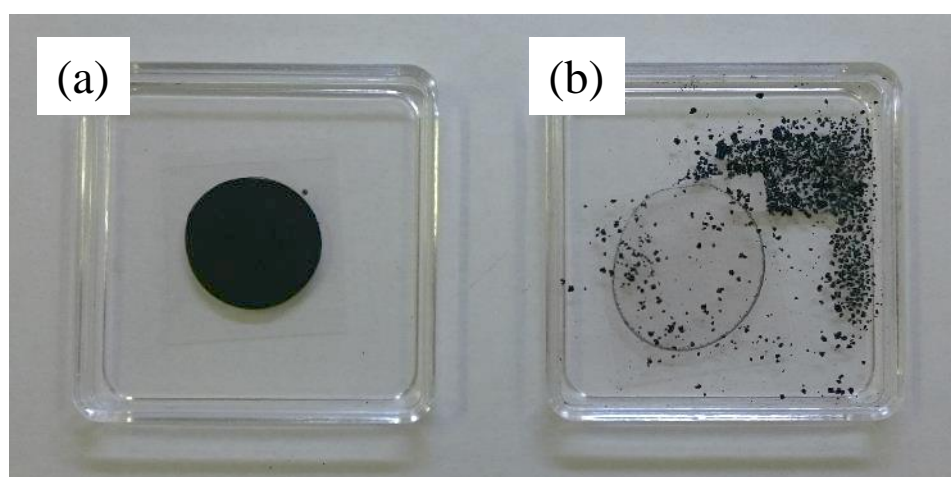


Figure S2. Appearance of samples prepared from liquid ink including CuO (a) before and (b) after IPL sintering.

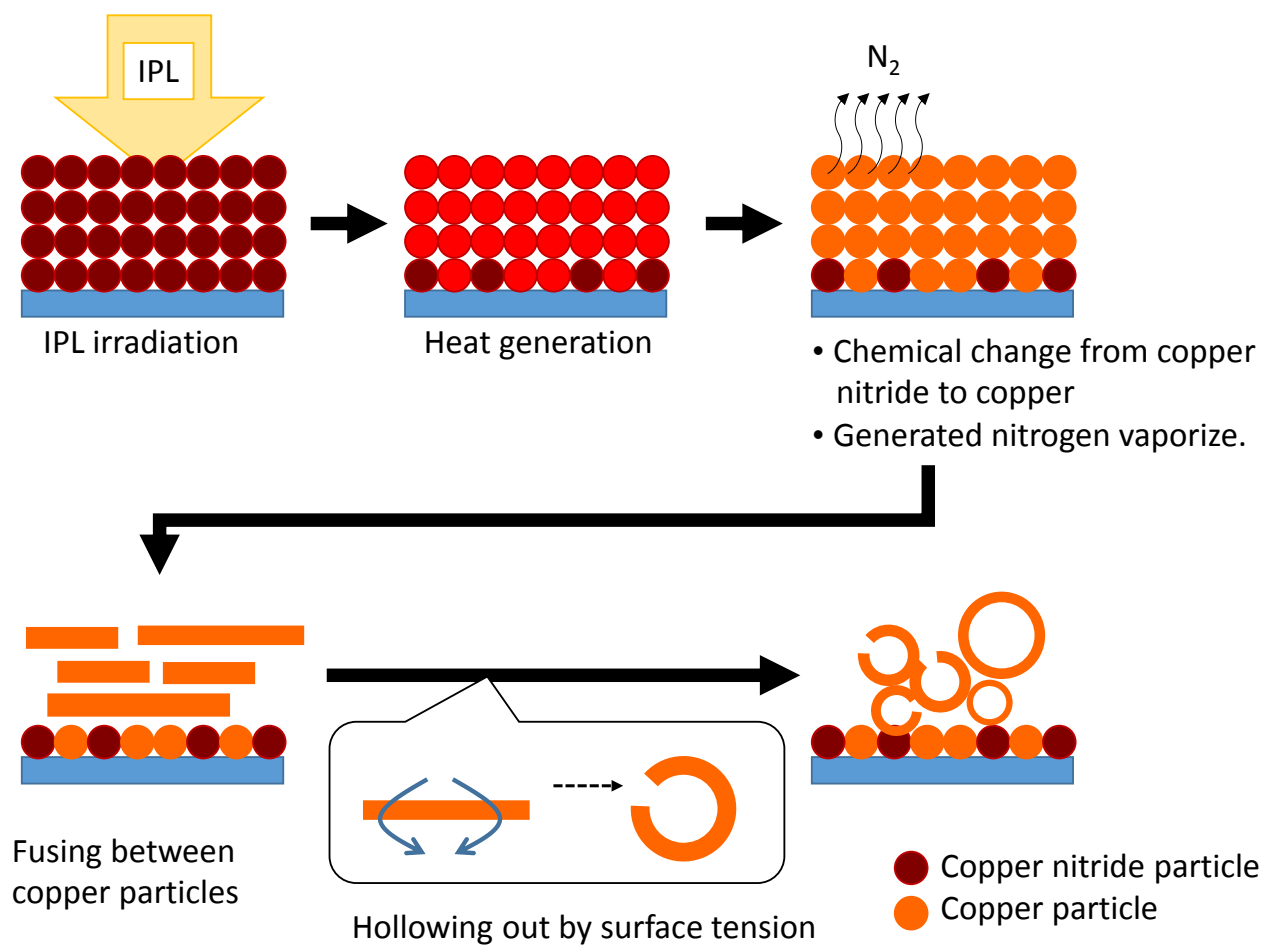


Figure S3. Schematic image for forming hollow particles.

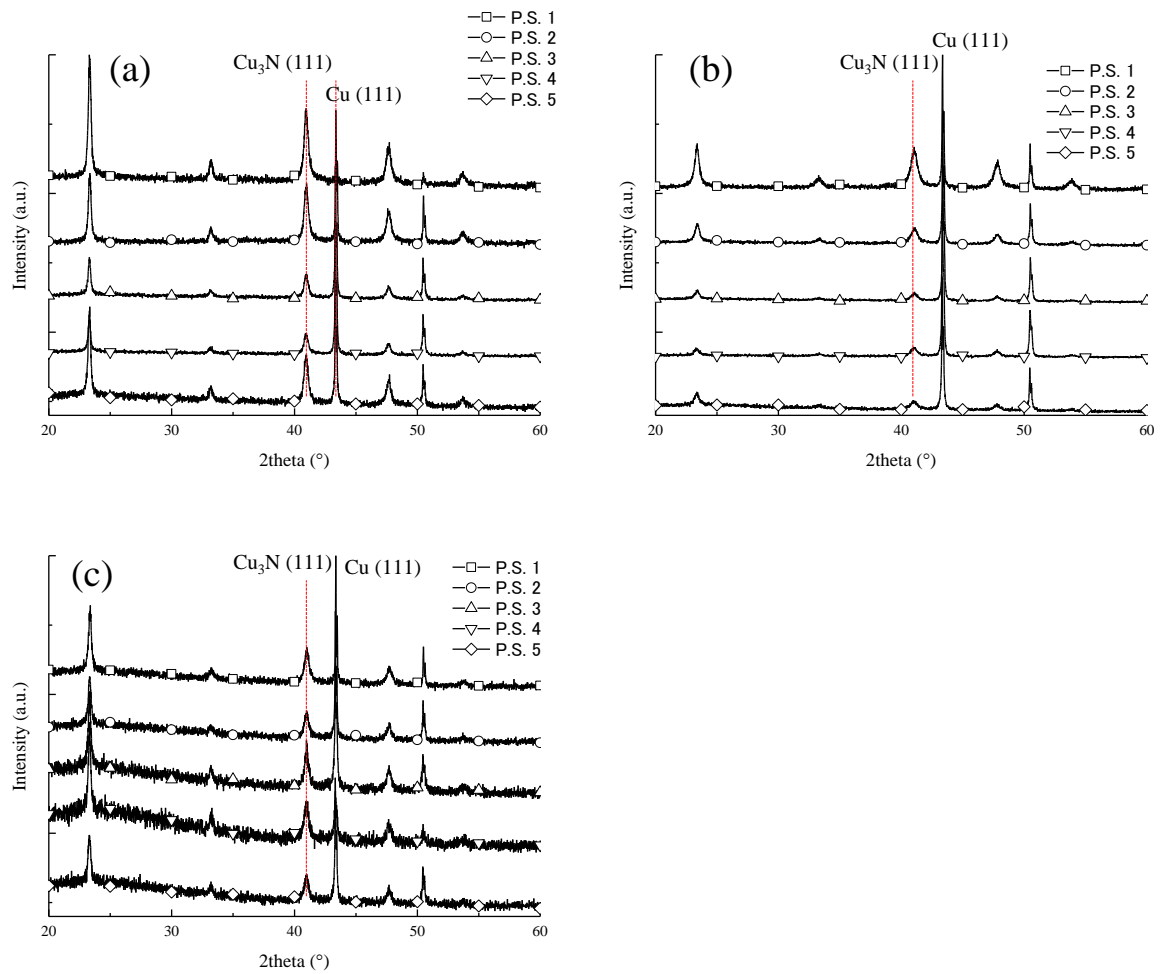


Figure S4. XRD patterns of different vehicles including  $\text{Cu}_3\text{N}$  films after IPL sintering. (a) Vehicle 1, (b) vehicle 2, and (c) vehicle 3.

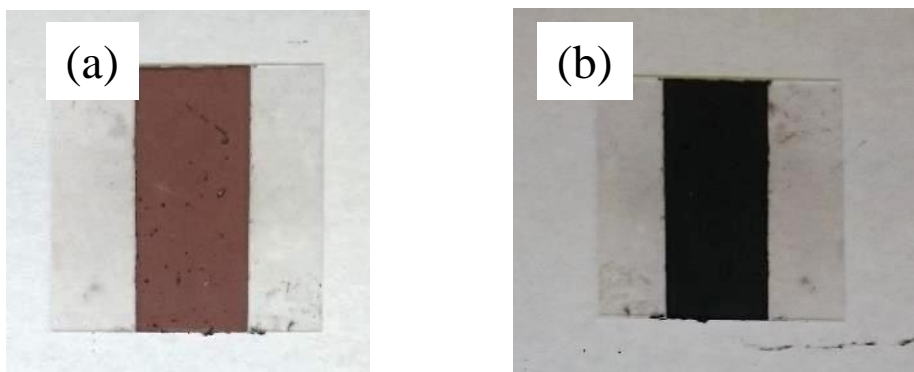


Figure S5. Appearance of a sample film after IPL sintering (a) front side and (b) back side.

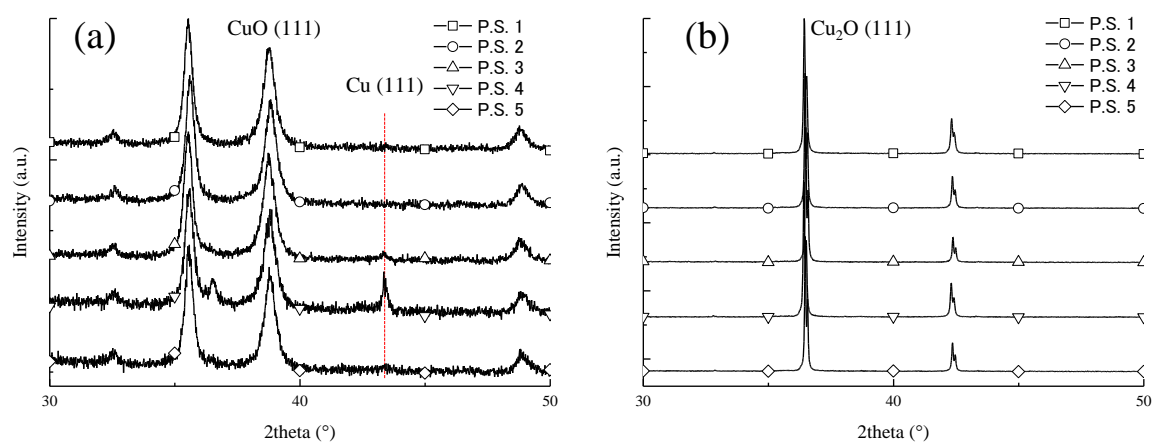


Figure S6. XRD patterns of sample films including (a) CuO and (b) Cu<sub>2</sub>O after IPL sintering.

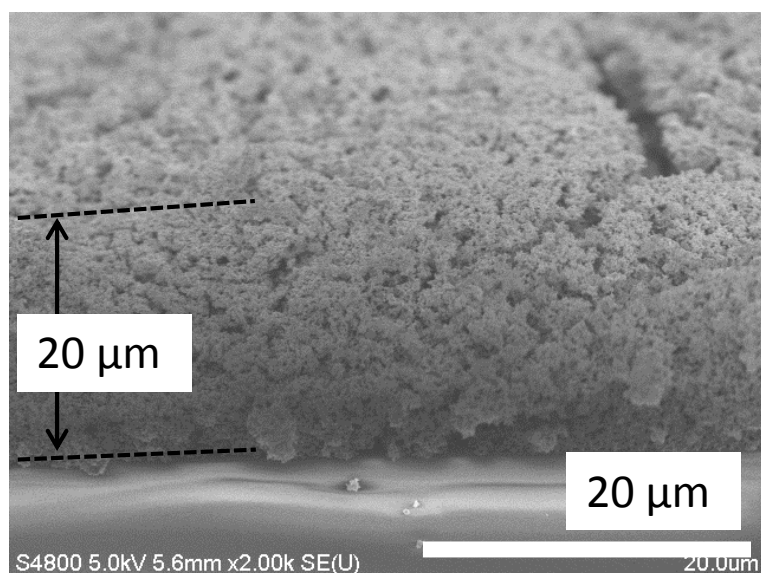


Figure S7. Cross-section SEM image of the sample sintered by IPL at 8.30 J·cm<sup>-2</sup> of irradiation energy.