

Additive Manufacturing of Structured Electrodes for Rechargeable Zinc Batteries

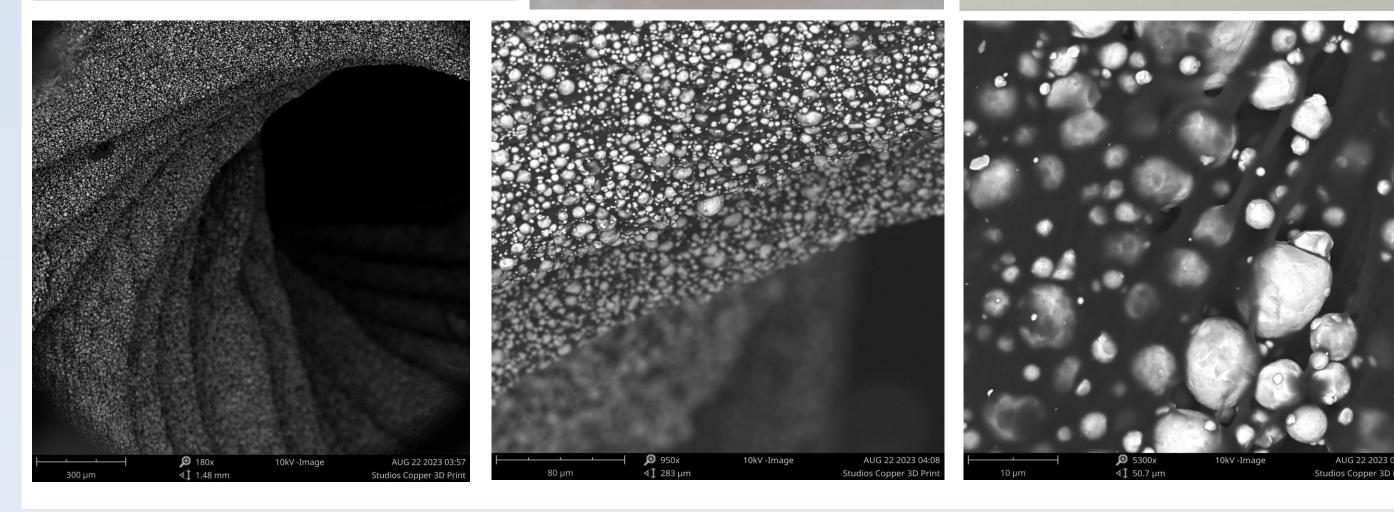
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Fused filament fabrication of 3D Cu Digital light processing of 3D Zn and Cu Suspending test of Zn powders 87% Cu-PLA <XY7 filament PROJECTOR HOT! **10% Zn powders** 5mm 5% 30% 20% in photopolymer 10% 15%

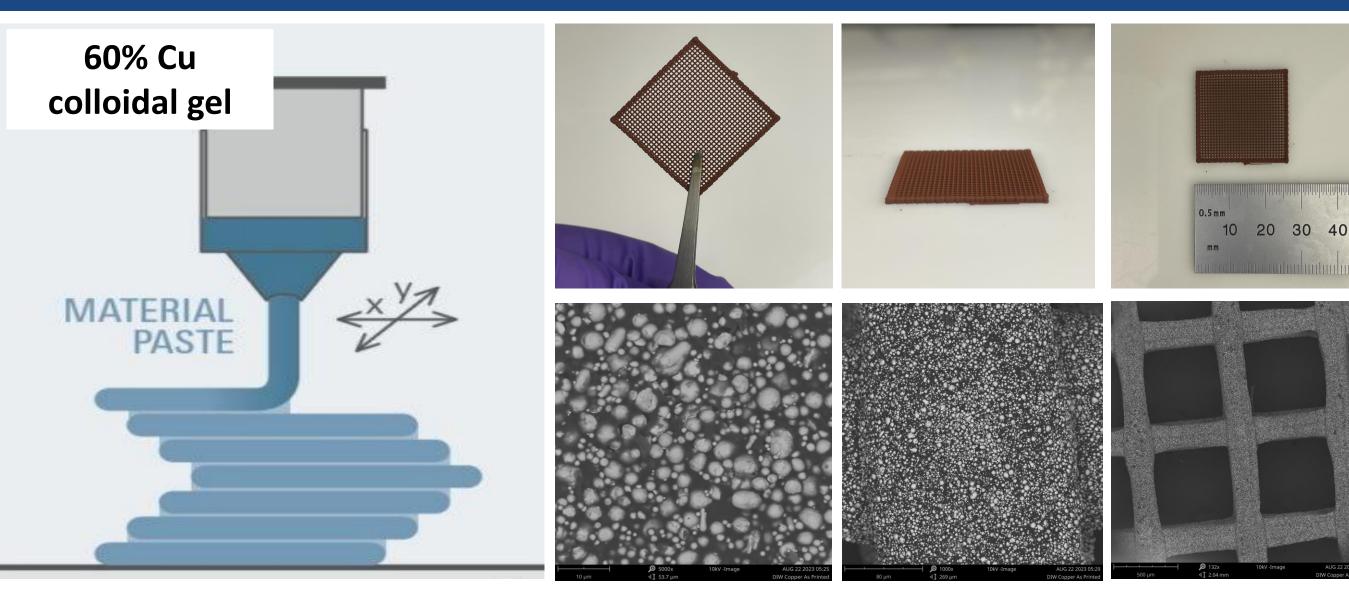


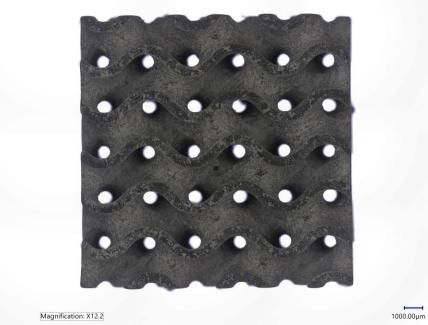
DLP printed 10wt% Zn gyroid structure



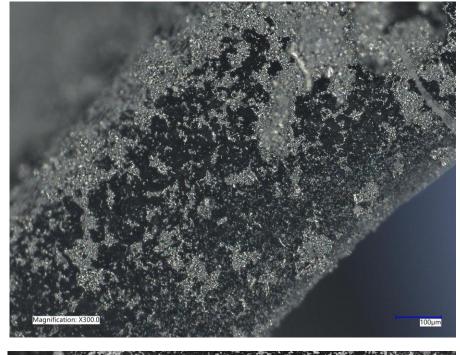
DLP printed 15wt% Zn gyroid structure

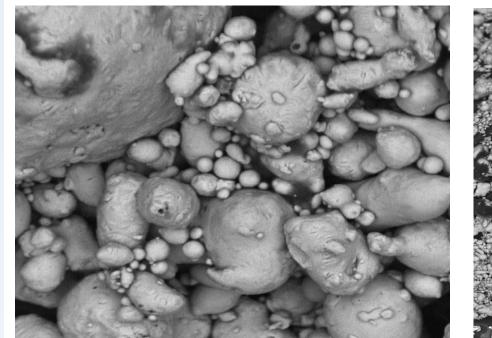
Direct ink writing of 3D Cu and Zn-Cu

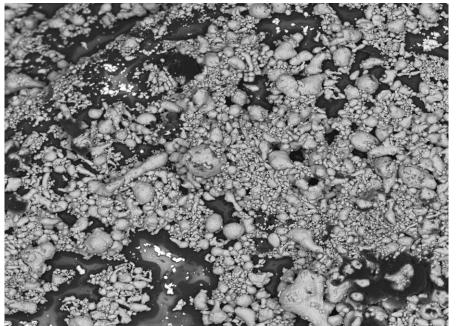




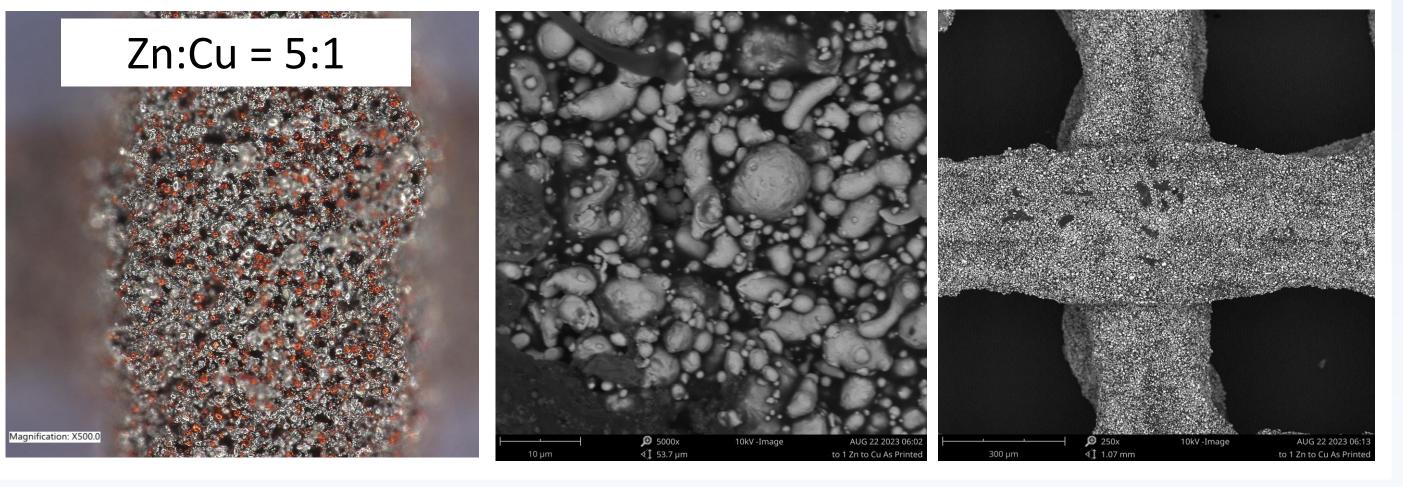














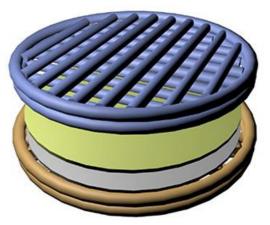
DLP printed 1wt% Cu gyroid structure



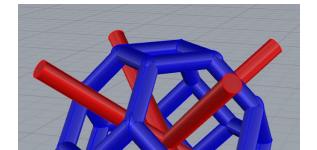
Interwoven configuration of electrodes

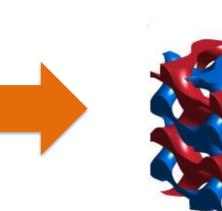
From printing single electrodes to full batteries

Sandwich

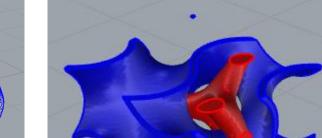


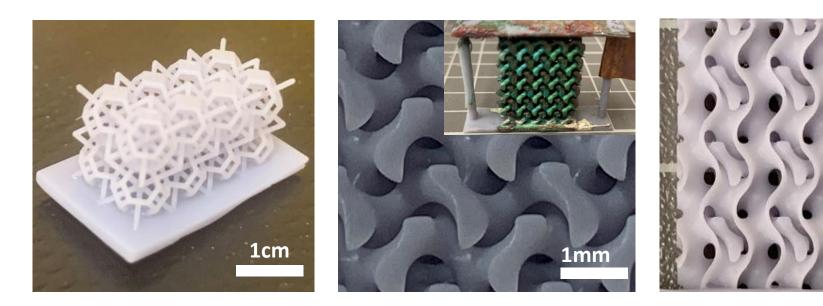
Kelvin cell-BCC lattice interpenetrating



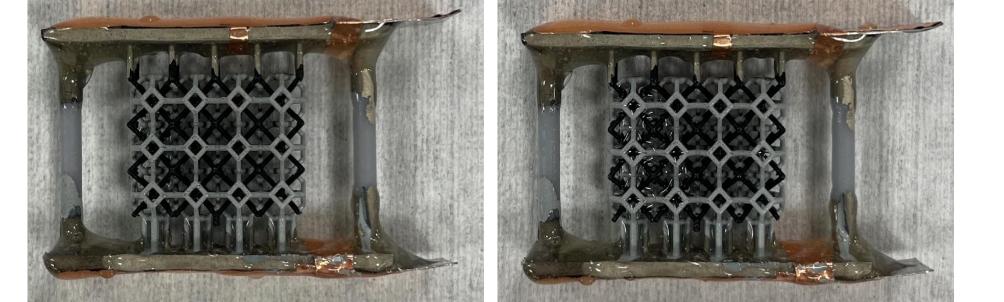


Gyroid struts lattice interpenetrating



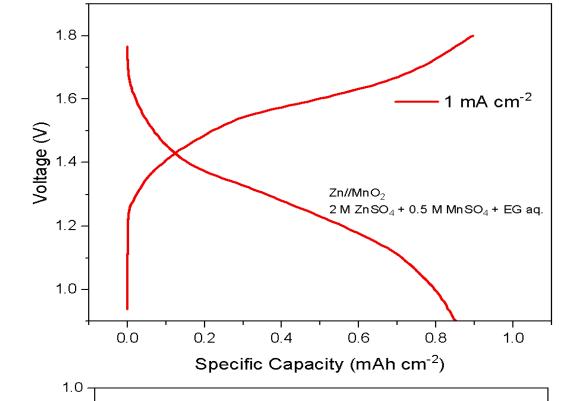


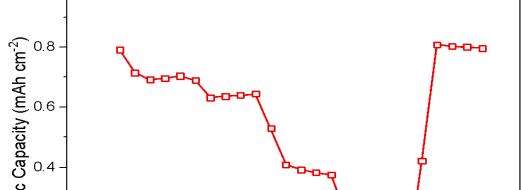
Selective electrodeposition of Zn onto Kelvin cells



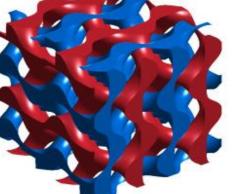
Selective electrodeposition of MnO₂ onto BCC cells





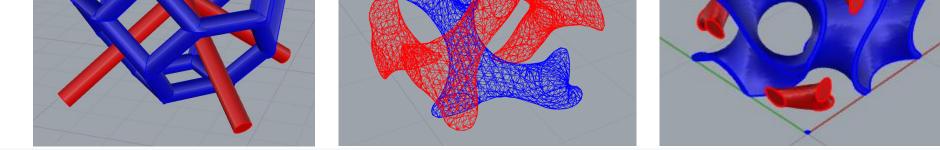


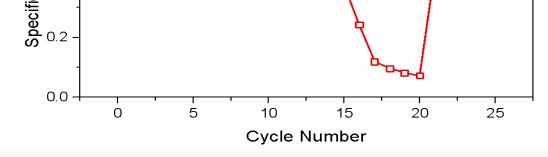
Interwoven



Gyroid sheet-strut interpenetrating







IM Release Number: LLNL-POST-XXXXXX





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