

**Electrodeposition of Zinc Nanoplates from an Ionic Liquid Composed of
1-Butylpyrrolidine and ZnCl₂: Electrochemical, *in situ* AFM and Spectroscopic Studies**

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Supporting Information

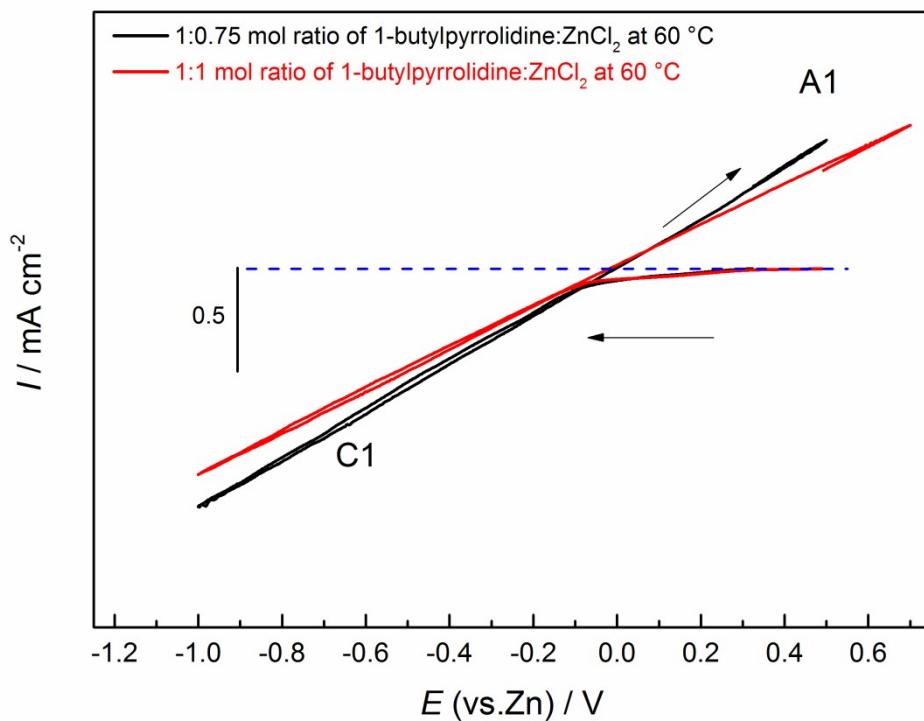


Figure S1. A comparison cyclic voltammograms at a Cu electrode for two different mol ratio of 1-butylpyrrolidine:ZnCl₂ (1:0.75 and 1:1) at 60 °C, $v = 10 \text{ mVs}^{-1}$.

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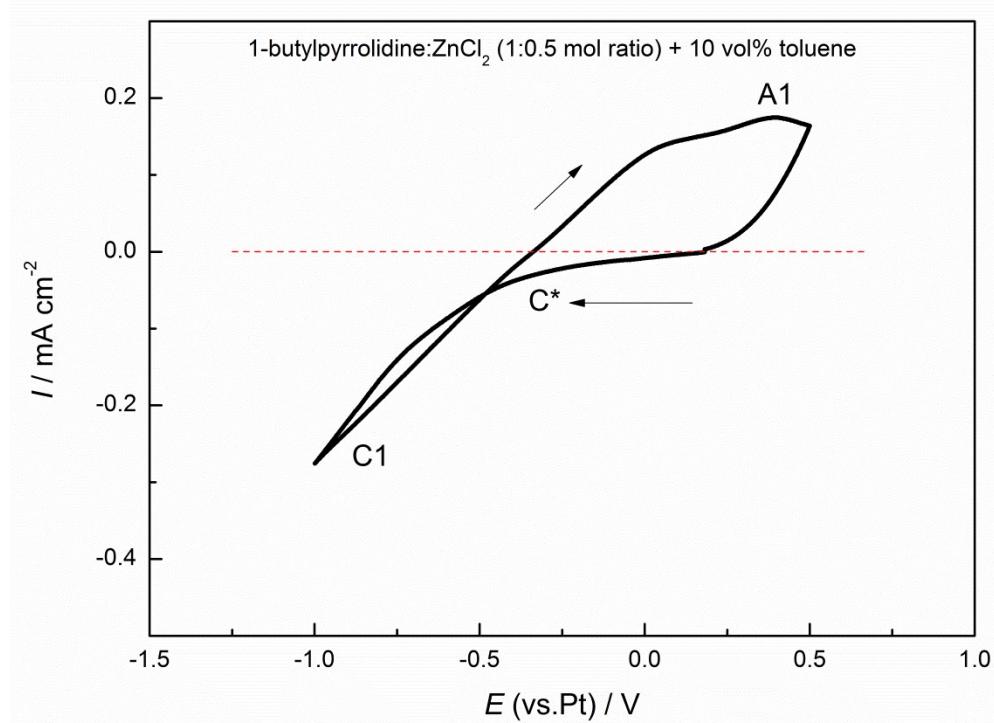


Figure S2. Cyclic voltammograms at a Au electrode for 1-butylpyrrolidine:ZnCl₂ (1:0.5 mol ratio)+10 vol% toluene at RT, $v = 10 \text{ mVs}^{-1}$

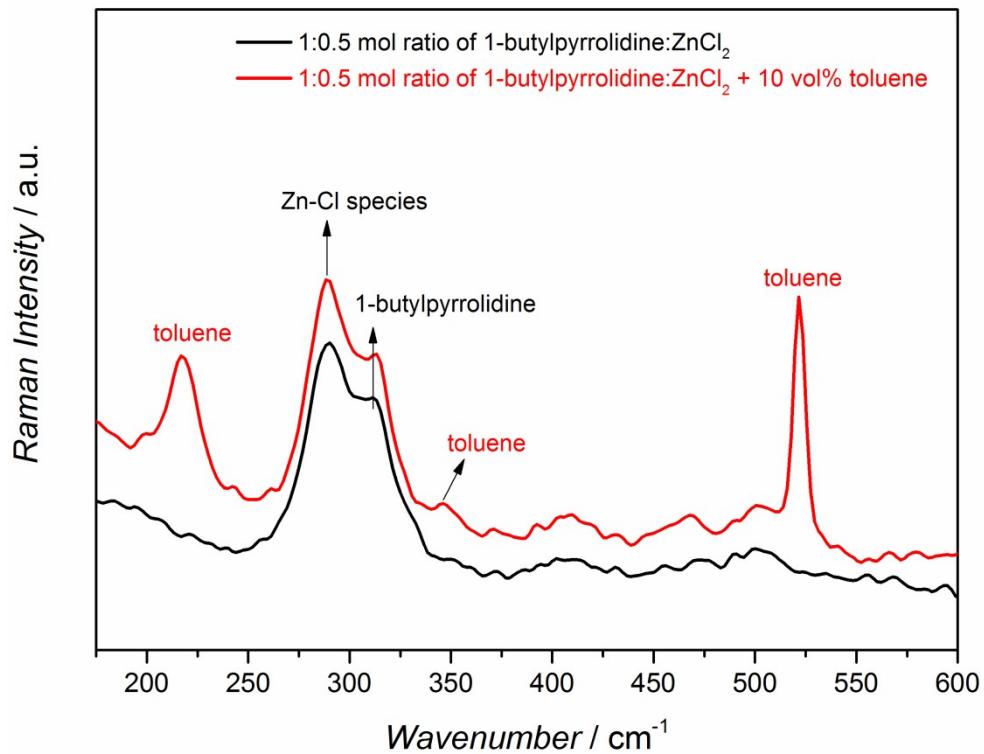


Figure S3. Raman spectrum of 1-butylpyrrolidine:ZnCl₂ (1:0.5 mol ratio)+10 vol% toluene in the regions between 190 and 600 cm⁻¹

Table S1: Viscosities of the synthesized mixtures at various mol ratios of 1-butylypyrrolidine and ZnCl₂ at 27 °C, * this mixture is semi-solid at 27 °C

Composition	Absolute Viscosity, mPa S
1:0.4	256
1:0.5	401,2
1:0.75	18440
1:1	- - *
1:0.5 + 10 vol% Toluene	126.9

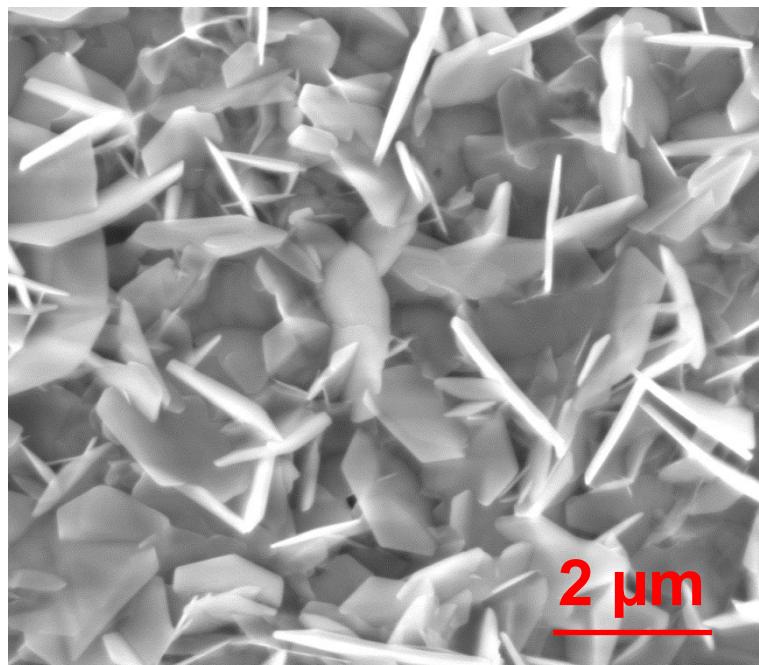


Figure S4. SEM image of Zn deposit obtained on gold from 1-butylypyrrolidine:ZnCl₂ (1:0.5 mol ratio)+10 vol% toluene at RT for 2h

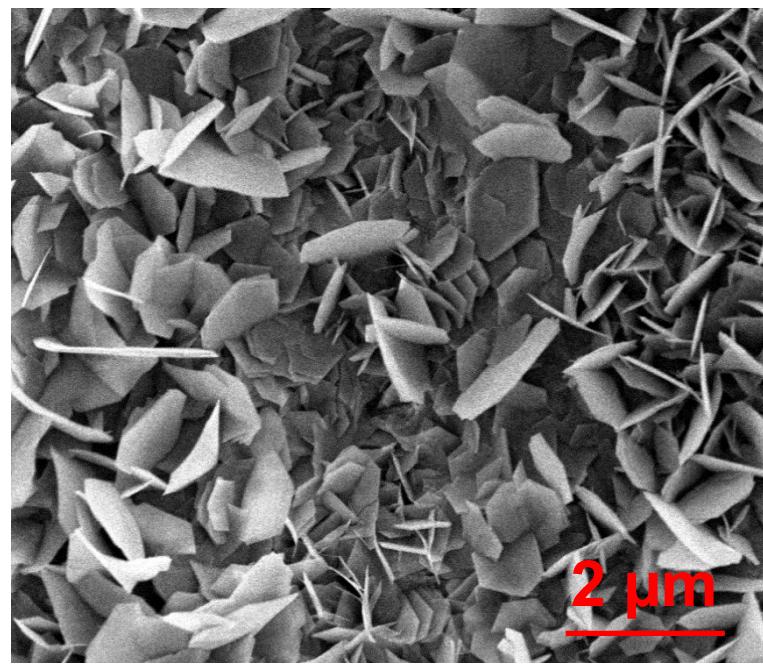


Figure S5. SEM image of Zn deposit obtained on Cu from 1-butylpyrrolidine:ZnCl₂ (1:0.5 mol ratio)+10 vol% toluene at RT for 2h

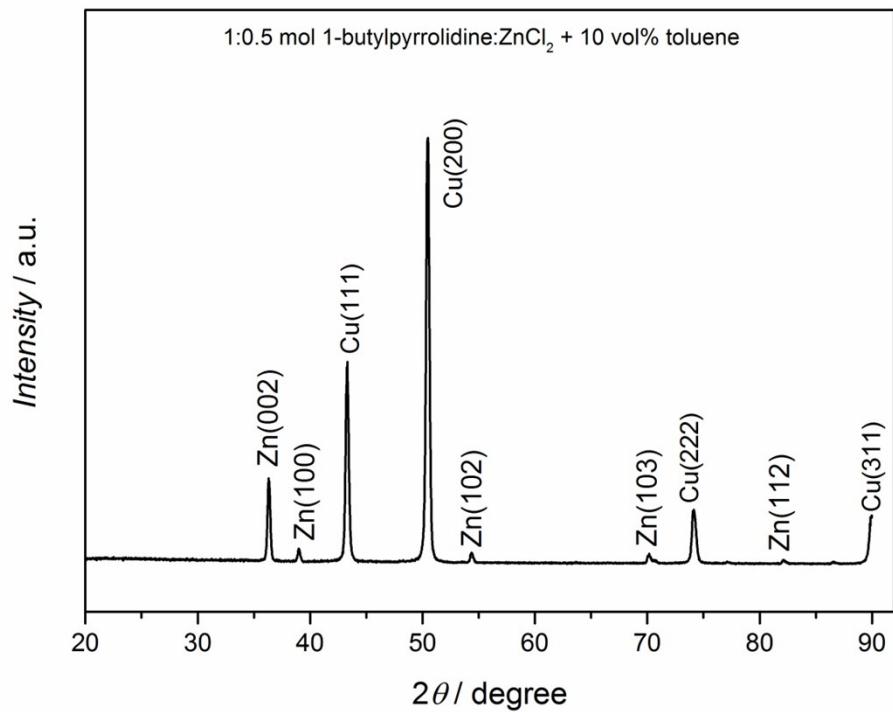


Figure S6. X-ray diffractogram of Zn deposit obtained on Cu from 1-butylpyrrolidine:ZnCl₂ (1:0.5 mol ratio)+10 vol% toluene at RT for 2h