

Fig. S1. Current transient studies for [HMPyr][Ac] at glassy carbon electrode. Temp. 25°C, Counter electrode-Pt and reference electrode-Pd.



Fig. S2. Current transient studies for [HMPyr][NO₃] at glassy carbon electrode (Temp. 25°C, Counter electrode-Pt and reference electrode-Pd



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Fig. S3. Chronoamperogram for electrodeposition of Ag from [HMPyr][Ac] on glassy carbon electrode at -286mV for 20 min. Counter electrode-Pt, Reference electrode-Pd, Temperature, 25°C.





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Fig. Chronoamperogram for electrodeposition S4. of Ag from [HMPyr][NO₃] on glassy carbon electrode at -205mV for 20 min. Counter electrode-Pt, Reference electrode-Pd, Temperature, 25°C.



Fig. S5. EDS Spectra for Ag_2S deposited from [HMPyr][AC] at -1096mV on Stainless Steel.

Element	Weight%	Atomic%
ск	2.45	11.92
ОК	1.32	4.83
S K	7.10	12.94
Cr L	13.16	14.80
Fe L	28.38	29.71
Ag L	47.60	25.80
Totals	100.00	



Fig. S6. EDS Spectra for Ag_2S deposited from [HMPyr][NO₃] at -855 mV on Stainless Steel.

Element	Weight%	Atomic%
S K	13.18	33.48
Fe L	1.38	2.02
Ag L	85.44	64.50
Totals	100.00	



Fig. S7. UV-Visible-NIR spectra of the obtained silver nanoplates obtained from [HMPyr][Ac] on stainless steel electrode at -955mV.





Fig. S8. UV-Visible-NIR spectra of the obtained silver sulphide nanoplates obtained from [HMPyr][Ac] on stainless steel electrode at -855mV.



Fig. S9. Atomic charge labeled solvent accessible surface of a 3D arrangement of few molecules of [HMPyr][Ac], generated after geometry optimization and energy minimization using MM and MMFF94 in ChemBio3D Ultra platform.



Fig. S10. Atomic charge labeled solvent accessible surface of a 3D arrangement of few molecules of [HMPyr][NO₃], generated after geometry optimization and energy minimization using MM and MMFF94 in ChemBio3D Ultra platform.



Fig. S11. FT-IR Spectra for [HMPyr][AC]



Fig. S12. FT-IR Spectra for [HMPyr][NO₃]

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