Electronic Supplementary Information (ESI)

A novel fabrication of polymeric ionic liquid hybrid film modified electrode and its successful application to electrogeneration of superoxide anion in aqueous media

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Fig. S1 Consecutive CVs (100 cycles) at GC electrode in 0.2 M Na_2SO_4 + H_2SO_4 aqueous solution (pH 1.0) containing 0.2 M DMA at 50 mVs^{-1} under Ar atmosphere.

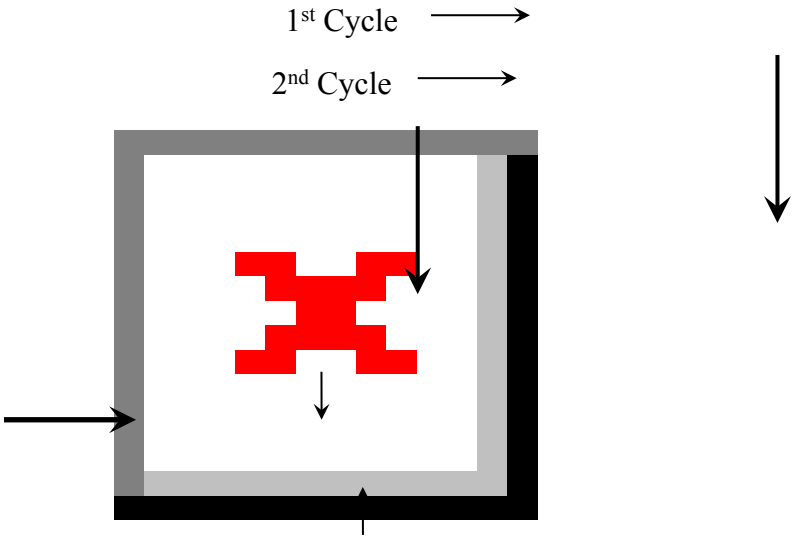


Fig. S2 LSM image of PDMA film prepared in Fig.S1.

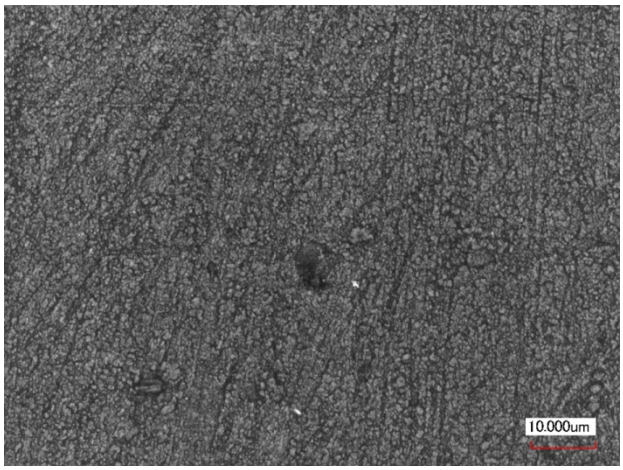
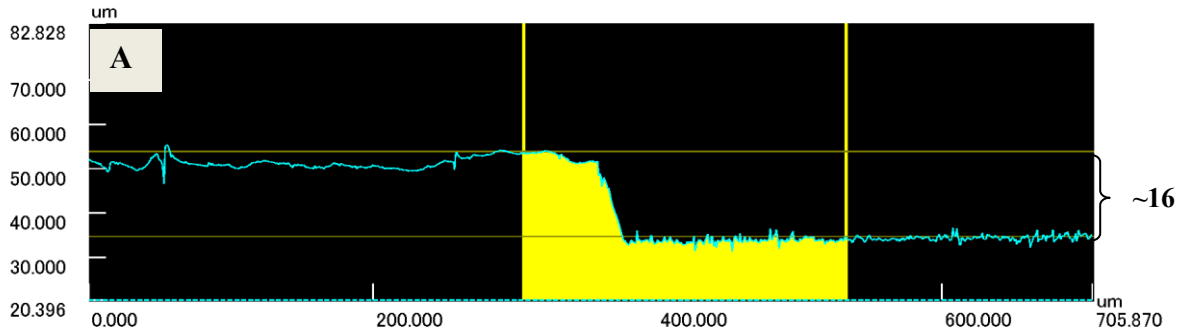
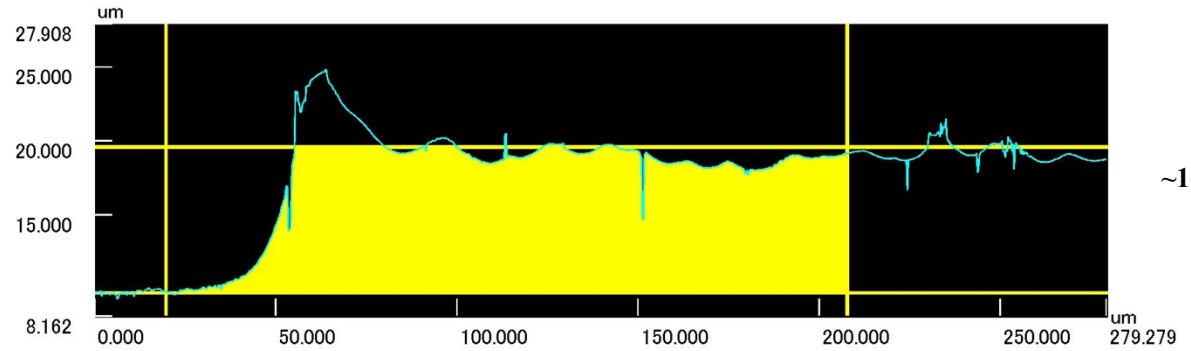


Fig. S3 Surface profiles of the PDMA films prepared in $[MPP]^+[N(Tf)_2]^-$ using (A) 100 and (B) 200 potential cycles and (C) in 0.2 M Na_2SO_4 + H_2SO_4 aqueous solution (pH 1.0) in the same way as in Fig. S1.





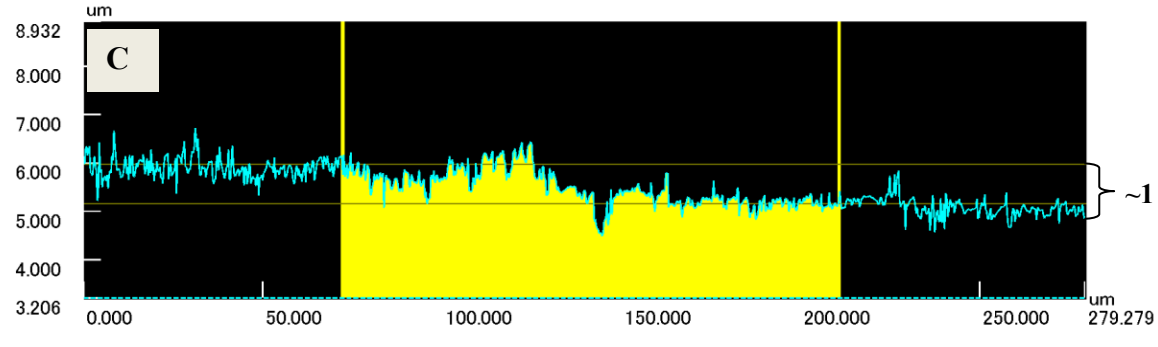
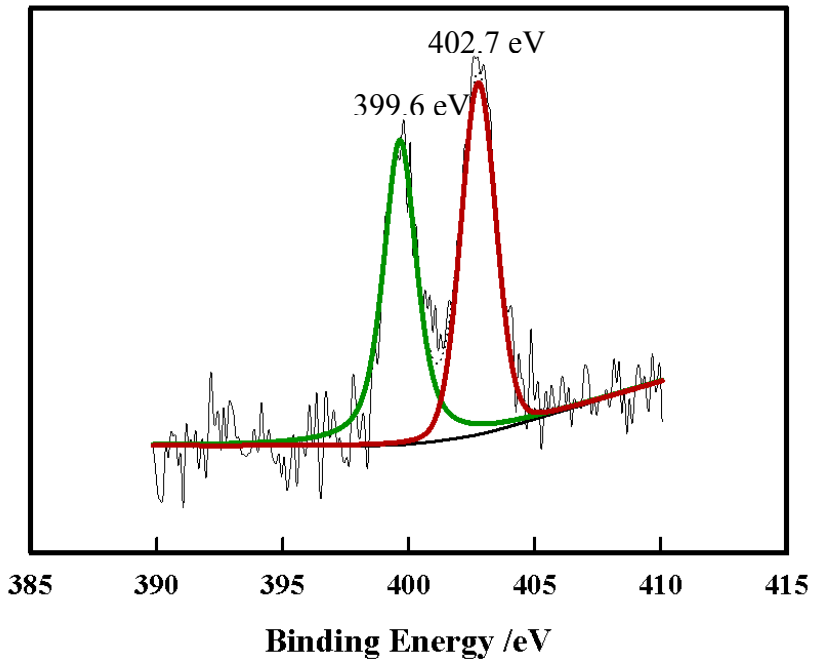


Fig.S4 Deconvoluted N1s spectra of $[MPP]^+[N(Tf)_2]^-$ / GC



The XPS spectra were recorded with a Shimadzu ESCA-3400 spectrophotometer equipped with ultra high vacuum system. The excitation X-ray was Mg-Kα yielding photons of 1253.6 eV that generate at 10 KV anode potential and 20 mA emission current. To compensate surface charging affects, the binding energy of C 1s was set as 285.0 eV and used as a reference for the calibration of other peak positions.

The deconvolution of the XPS peaks into different components was made after subtraction of the background using Shirley method. The developed curve-fitting programs permitted the variation of the parameters such as Gaussian/Lorenzian ratio, the full width at half maximum (FWHM), the position and intensity of the contribution. These parameters were optimized by a computer program giving the best fit to the experimental data.