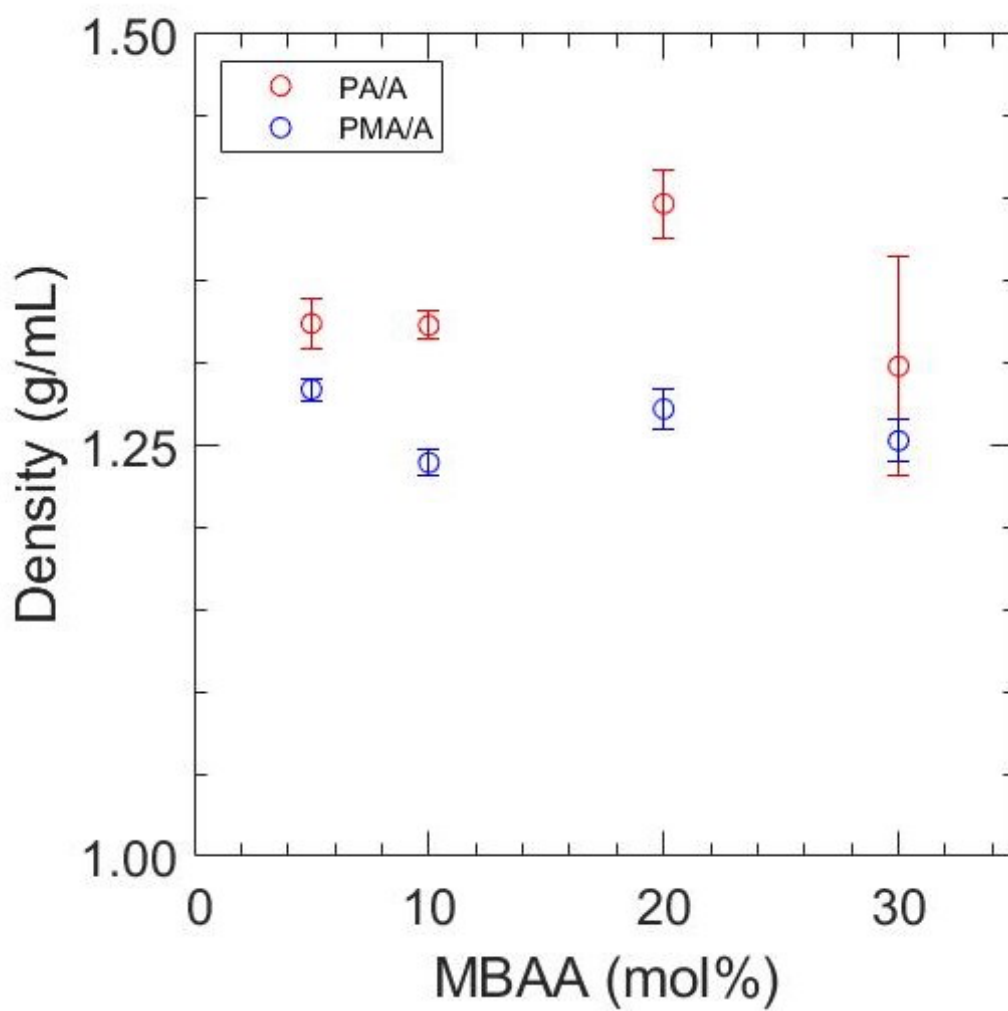# Supporting Information

**Development of Structure-Property Relationships for Ammonium Transport Through Charged Organogels**
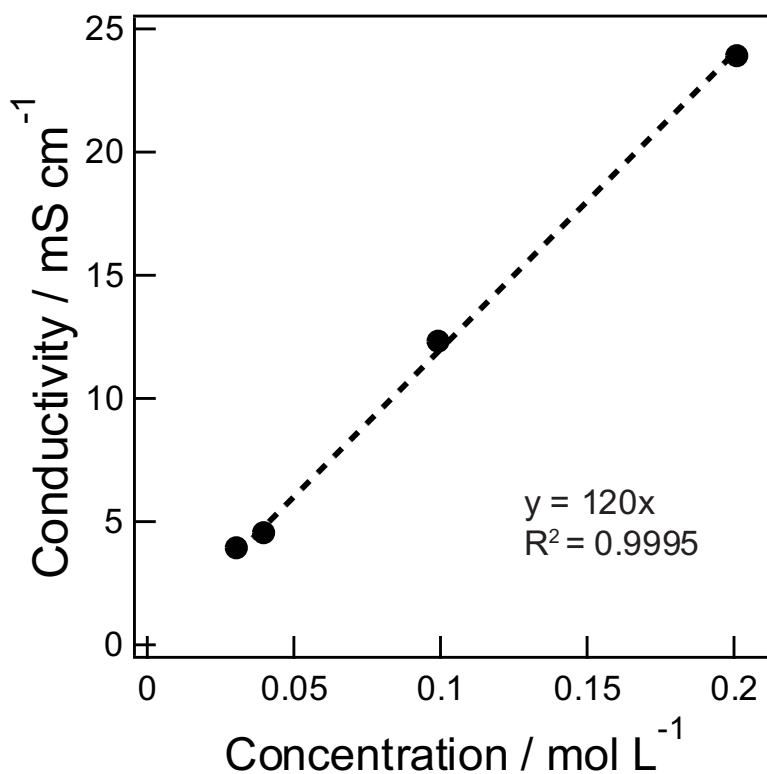
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**Figure S1.** Photos of film as an organogel (left) and punch out (right).



**Figure S2**. Film Densities for PA (red) and PMA (blue).

**Figure S3**. Calibration plot of measured conductivity versus concentration for aqueous ammonium chloride

**Table S1.** Water uptakes, film densities, and water volume fractions for PA and PMA films. Number in film name indicated MBAA content

| Name | Water Uptake (%) | Film Density (g/mL) | Water Volume Fraction |
|---|---|---|---|
| PA-5 | $186 \pm 8$ | $1.32 \pm 0.02$ | $0.71 \pm 0.01$ |
| PA-10 | $132 \pm 5$ | $1.323 \pm 0.009$ | $0.637 \pm 0.007$ |
| PA-20 | $126.4 \pm 0.8$ | $1.40 \pm 0.02$ | $0.645 \pm 0.003$ |
| PA-30 | $100 \pm 8$ | $1.30 \pm 0.07$ | $0.56 \pm 0.03$ |
| PMA-5 | $95 \pm 6$ | $1.284 \pm 0.007$ | $0.55 \pm 0.01$ |
| PMA-10 | $89 \pm 9$ | $1.24 \pm 0.01$ | $0.52 \pm 0.02$ |
| PMA-20 | $68.9 \pm 0.6$ | $1.272 \pm 0.008$ | $0.468 \pm 0.004$ |
| PMA-30 | $53 \pm 2$ | $1.25 \pm 0.01$ | $0.401 \pm 0.008$ |

**Table S2.** Ammonium permeability, solubility, and diffusivity for PA and PMA films.

| Name | Permeability ($\times 10^{-7}$ cm s$^{-1}$) | Solubility | Diffusivity ($\times 10^{-7}$ cm s$^{-1}$) |
|---|---|---|---|
| PA-5 | $33 \pm 2$ | $0.502 \pm 0.006$ | $66 \pm 3$ |
| PA-10 | $20.5 \pm 0.8$ | $0.477 \pm 0.009$ | $43 \pm 2$ |

| | | | |
|---|---|---|---|
| PA-20 | 14 ± 2 | 0.40 ± 0.04 | 35 ± 5 |
| PA-30 | 3.6 ± 0.1 | 0.34 ± 0.01 | 10.5 ± 0.5 |
| PMA-5 | 12.3 ± 0.4 | 0.47 ± 0.04 | 26 ± 2 |
| PMA-10 | 17 ± 1 | 0.34 ± 0.03 | 50 ± 6 |
| PMA-20 | 6.8 ± 0.2 | 0.320 ± 0.002 | 21.1 ± 0.7 |
| PMA-30 | 4.0 ± 0.4 | 0.38 ± 0.02 | 11 ± 1 |