

## Supporting Information for

### Increasing cation ion symmetry reduces ionic liquid ordering in thin films

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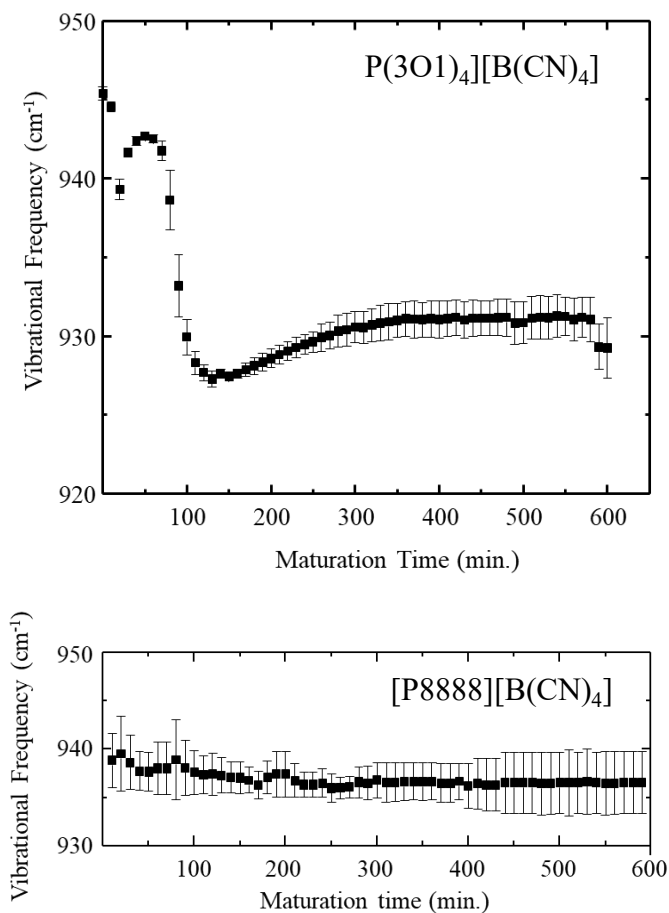
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**Figure S1:**



**TOP:** The center frequency of the vibrational mode assigned to the B-C stretch acquired on  $[P(3O1)_4][B(CN)_4]$  as a function of time after substrate rotation is ceased. Data points (black squares) are representative of  $n \geq 3$  trials. Error bars represent standard deviation in the measurement.

**BOTTOM:** The center frequency of the vibrational mode assigned to the B-C stretch acquired on  $[P8888][B(CN)_4]$  as a function of time after substrate rotation is ceased. Data points (black squares) are representative of  $n \geq 3$  trials. Error bars represent standard deviation in the measurement.