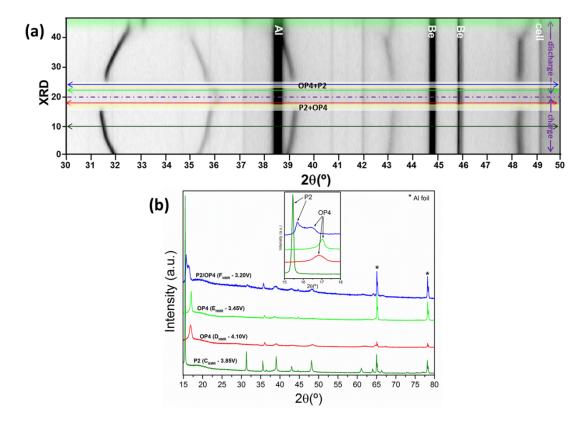
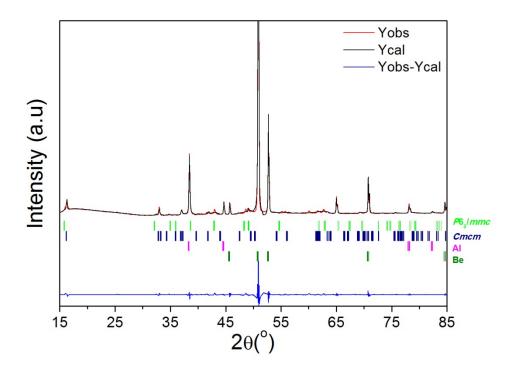
## **Supporting Information**

Title: Structure and Dynamics of P2  $Na_{2/3}[Fe_{1/2}Mn_{1/2}]O_2$  During Sodiation/Desodiation Process

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**Figure S1.** (a) 2theta versus time plot of the XRD patterns comprising a full cycle (charge and discharge). The level of grey indicates the relative intensity (the darker the more intense). The gradient areas show the biphasic regions. (b) Ex-situ XRD at different voltages according to the NMR measurements



 $\textbf{Fig. S2}: Refined \ X-ray \ diffraction \ pattern \ at the \ end \ of the \ first \ discharge \ showing \ the \ orthorhombic \ phase$