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## **Supplemental Information**

**Figure S1.** Histogram of fiber alignment for CoFe2O4 samples shown in Figure 3 in the main text. These histograms reveal that samples taken with the gaps adjacent to the central column show the highest degrees of alignment.



**Figure S2.** Histrograms of fiber alignment for CoFe<sub>2</sub>O<sub>4</sub> fibers, these histograms correspond to the SEM micrographs shown in Figure 5 in the main text.



**Figure S3**. SEM samples showing an increase in alignment with increasing central guide column voltage for  $BaTiO_3$ . Guide column voltages and histograms of alignment angles are inset onto each SEM image. Alignment increases until a maximum alignment is reached at a central guide column voltage of 4 kV.



**Figure S4**. SEM samples showing an increase in alignment with increasing central guide column voltage for  $BiFeO_3$ . Guide column voltages and histograms of alignment angles are inset onto each SEM image. Alignment increases until a maximum alignment is reached at a central guide column voltage of 6 kV.



**Figure S5.**: SEM samples showing an increase in alignment with increasing central guide column voltage for  $Ni_{0.5}Zn_{0.5}Fe_2O_4$ . Guide column voltages and histograms of alignment angles are inset onto each SEM image. Alignment increases until a maximum alignment is reached at a central guide column voltage of 9 kV



**Figure S6.** SEM samples showing an increase in alignment with increasing central guide column voltage for  $CoFe_2O_4$  (2). Guide column voltages and histograms of alignment angles are inset onto each SEM image. Alignment increases until a maximum alignment is reached at a central guide column voltage of 9 kV



**Figure S7**. X-ray diffraction spectra for calcined and aligned BiFeO<sub>3</sub> fibers spun on the guide column array. (Note: Inset from Figure 8a)



**Figure S8.** X-ray diffraction spectra for calcined and aligned  $CoFe_2O_4$  fibers spun on the guide column array. (Note: Inset from Figure 8b)