

Supplementary Information for

Radiation-induced Disorder in Compressed Lanthanide Zirconates

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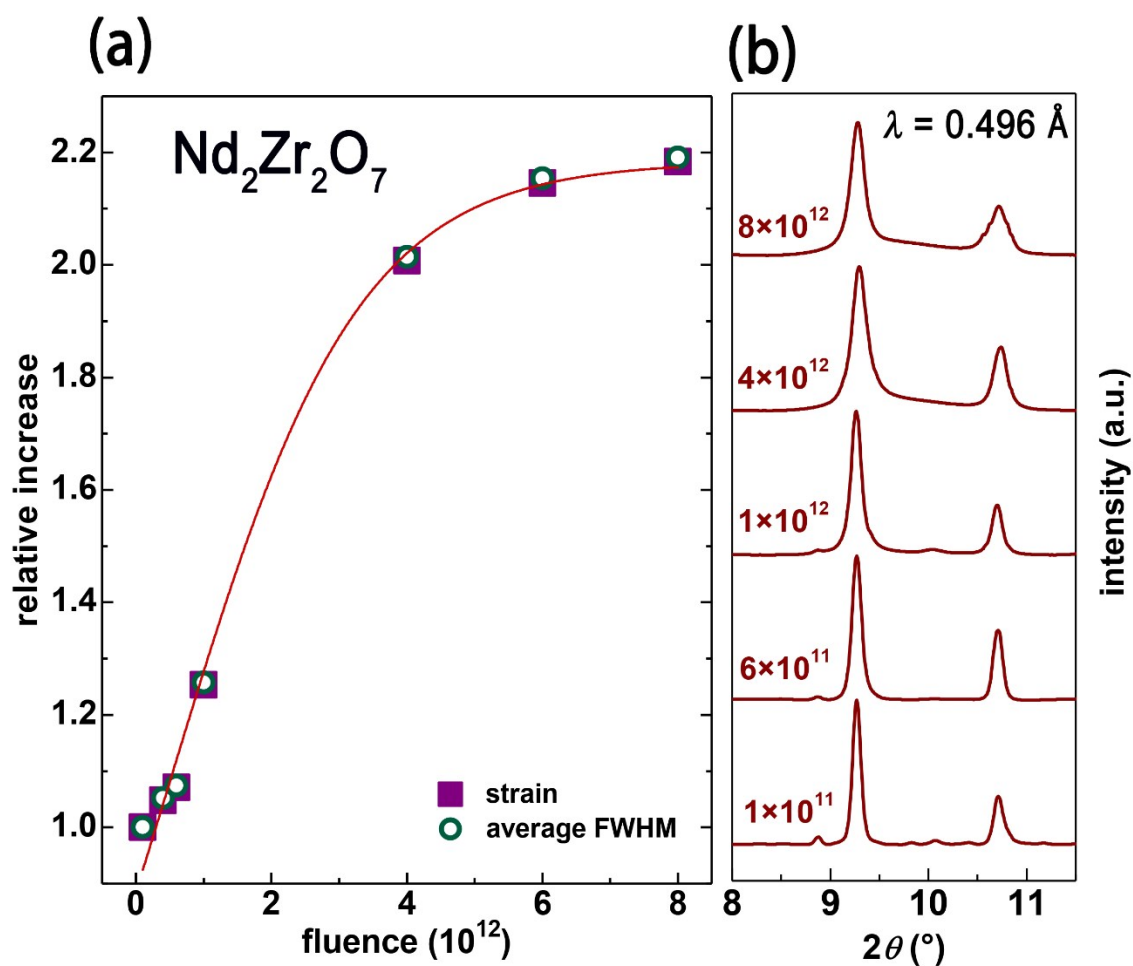


Fig. S1 (a) Relative increase in the average full-width and half-maximum of $\text{Nd}_2\text{Zr}_2\text{O}_7$ diffraction maxima and strain effect deduced from William-Hall analysis. (b) Enlarged XRD patterns of $\text{Nd}_2\text{Zr}_2\text{O}_7$ as a function of increasing ion fluence.

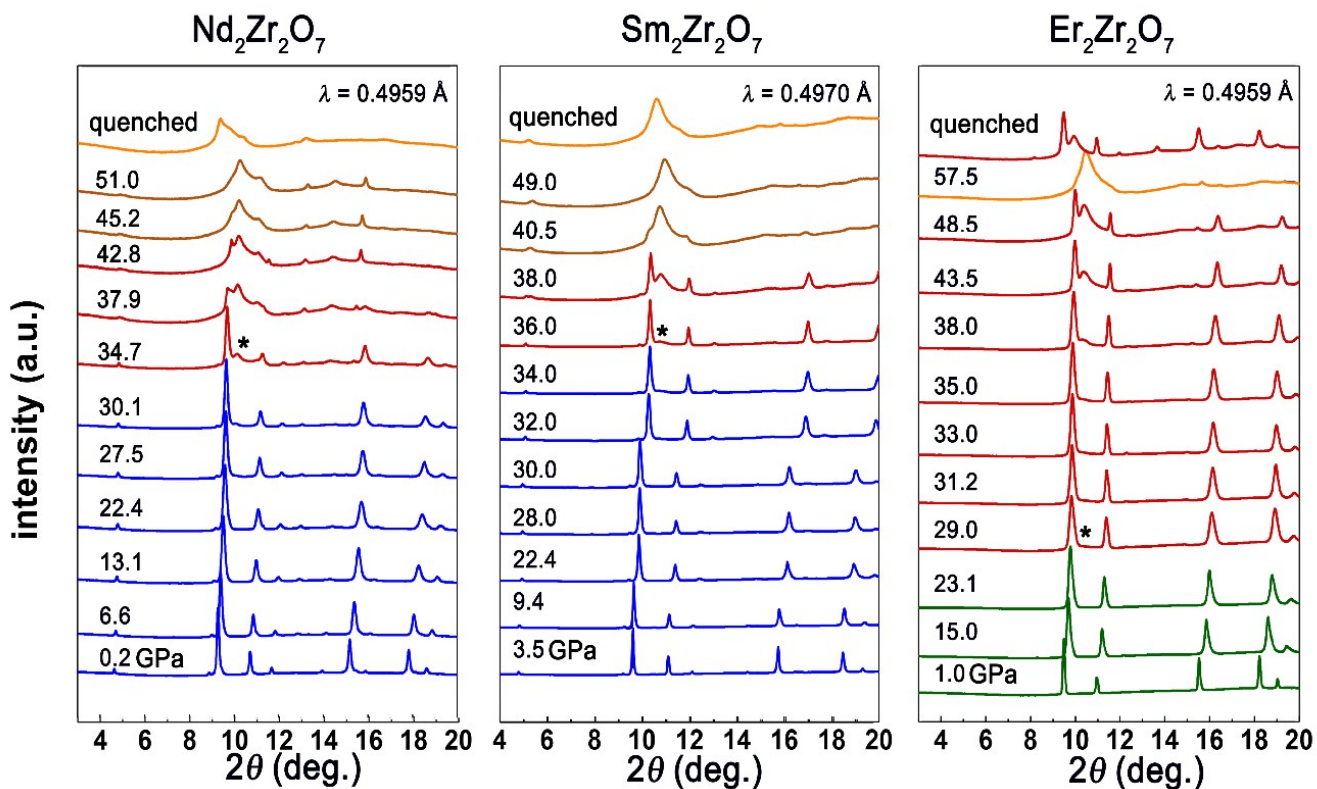


Fig. S2 Representative XRD patterns of unirradiated lanthanide zirconates as a function of pressure up to ~ 50 GPa. Numbers on the left are pressures in GPa. The critical pressure, P_{crit} , for the appearance of cotunnite-like phase in each compound is marked with asterisks. (For color codes: blue indicates pyrochlore structure, green indicates defect-fluorite structure, red indicates cotunnite-like phase, brown indicates a mixed amorphous and cotunnite-like phase, and orange indicates amorphous phase).

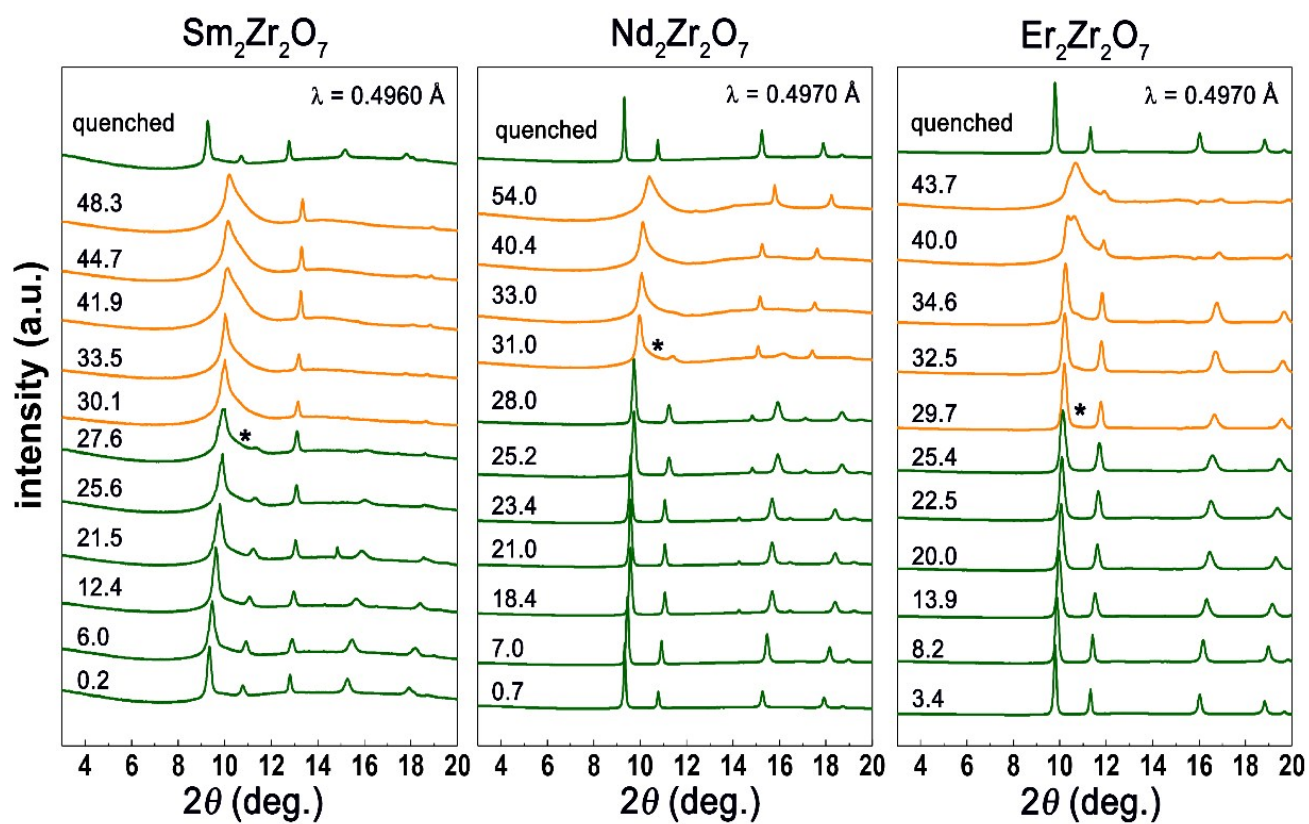


Fig. S3 Representative high pressure XRD patterns of zirconate compounds, after they had been completely disordered with SHI irradiation (at the highest applied fluence), up to pressures of ~50 GPa. Numbers on the left are pressures in GPa. The critical pressure, P_{crit} for the asymmetry in each compound is marked with asterisks.

