In situ X-ray observations of the post-garnet transformation kinetics of pyrope

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We have conducted in situ X-ray diffraction experiments using sintered diamond multianvil apparatus at 26.0-31.0 GPa and 1273-1673K in order to clarify kinetics of the post-pyrope transformation. It was qualitatively shown that the rate of the post-spinel transformation is faster than that of the post-pyrope transformation. We confirmed grain-boundary nucleation and growth mechanisms in the post-pyrope transformation from microstructural observations of the recovered sample.