Supporting information

## Cryogenic abnormal thermal expansion property of carbon-doped La(Fe,Si)<sub>13</sub> compounds

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The variable-temperature X-ray diffraction spectra for samples of  $LaFe_{11.5}Si_{1.5}C_x$  (x=0, 0.2, 0.4 and 0.6)



Fig. S1 The variable-temperature X-ray diffraction patterns from 50 to 300 K for sample of  $LaFe_{11.5}Si_{1.5}$ .



Fig. S2 The variable-temperature X-ray diffraction patterns from 50 to 300 K for sample of LaFe<sub>11.5</sub>Si<sub>1.5</sub>C<sub>0.2</sub>.



Fig. S3 The variable-temperature X-ray diffraction patterns from 50 to 300 K for sample of LaFe<sub>11.5</sub>Si<sub>1.5</sub>C<sub>0.4</sub>.



Fig. S4 The variable-temperature X-ray diffraction patterns from 50 to 300 K for sample of  $LaFe_{11.5}Si_{1.5}C_{0.6}$ .