Supporting Information

From Tetrahedral to Octahedral Iron Coordination - Layer Compression in Topochemically-Prepared, FeLa$_2$Ti$_3$O$_{10}$

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Figure S1. XRD patterns of isothermal treatment of FeLa$_2$Ti$_3$O$_{10}$ at 700 °C for various times.

Figure S2. Comparison of the synchrotron data; stepwise thermal treatment of FeLa$_2$Ti$_3$O$_{10}$ to 700 °C.

Figure S3. Thermal analysis for FeLa$_2$Ti$_3$O$_{10}$, TGA (black, left) and DSC (blue, right) under Ar-O$_2$ (exo up).

Figure S4. FESEM images of FeLa$_2$Ti$_3$O$_{10}$ (left) and Fe$_{0.67}$La$_2$Ti$_3$O$_{10}$ (right).

Figure S5. Magnetic susceptibility of FeLa$_2$Ti$_3$O$_{10}$ with increasing magnetic fields.

Figure S6. ZFC-FC curves for Fe$_{0.67}$La$_2$Ti$_3$O$_{10}$ with increasing magnetic fields.
Figure S1. XRD patterns of (a) FeLa₃Ti₃O₁₀ sample, (b) after heating under constant Ar flow at 650 °C for 30 min, (c) 675 °C for 30 min, (d) 700 °C without isotherm, (e) 700 °C for 30 min and (f) 700 °C for 5 h.
Figure S2. Comparison of the synchrotron data of (a) FeLa$_2$Ti$_3$O$_{10}$ with the products annealed under inert atmosphere at (b) 200 °C, (c) 300 °C, (d) 400 °C, (e) 500 °C, (f) 600 °C, (g) 700 °C, (h) 25 °C at the end of the experiment.
Figure S3. Thermal analysis for FeLa₂Ti₃O₁₀, TGA (black, left) and DSC (blue, right) under Ar-O₂ (exo up).
FESEM images were taken to look at the morphology of Fe$_{0.67}$La$_2$Ti$_3$O$_{10}$ in comparison with the parent compound FeLa$_2$Ti$_3$O$_{10}$. As can be seen, the plate-like morphology of the crystallites is maintained after oxidative deintercalation of the iron oxide.

Figure S4. FESEM images of FeLa$_2$Ti$_3$O$_{10}$ (left) and Fe$_{0.67}$La$_2$Ti$_3$O$_{10}$ (right).
Figure S5. Magnetic susceptibility at 100 (black), 500 (red), 1000 (blue), and 5000 Oe (green). Transitions at 23.3, 22.1, 19.8 and 19.4 K for 100, 500, 1000 and 5000 Oe fields, respectively.
Figure S6. ZFC-FC curves for Fe$_{0.67}$La$_{2}$Ti$_{3}$O$_{10}$ at (a) 100, (b) 500, (c) 1000 and (d) 5000 Oe.