

Supplementary Materials

Structural Insight into $\text{La}_{0.5}\text{Ca}_{0.5}\text{Mn}_{0.5}\text{Co}_{0.5}\text{O}_3$ Decomposition in the Methane Combustion Process

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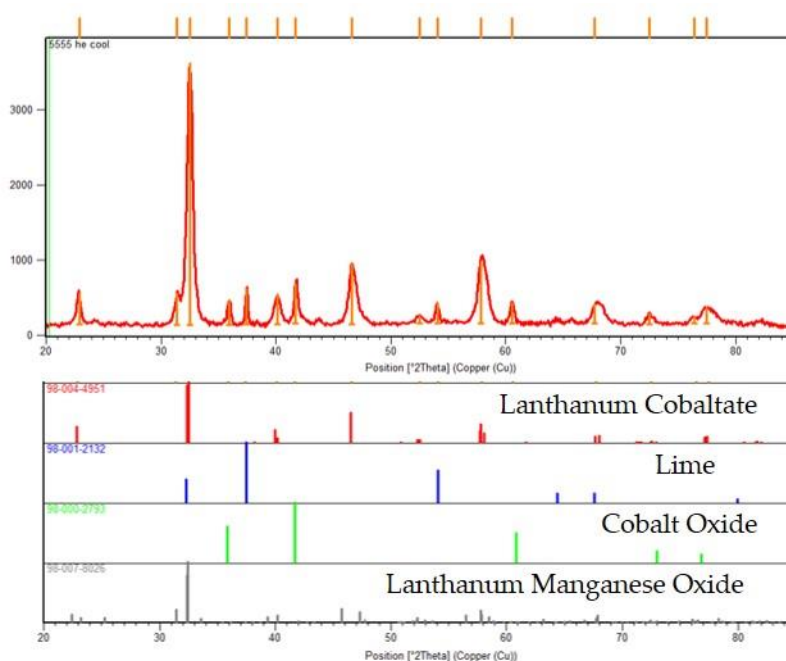


Figure S1. XRD pattern of $\text{La}_{0.5}\text{Ca}_{0.5}\text{Mn}_{0.5}\text{Co}_{0.5}\text{O}_3$ sample after TGA in He atmosphere.

Pattern List

Visible	Ref.Code	Score	Compound Name
red	98-004-4951	76	Lanthanum Cobaltate
blue	98-007-8694	52	Cobalt Oxide
green	98-001-2132	42	Lime
gray	98-007-8026	39	Lanthanum Manganes

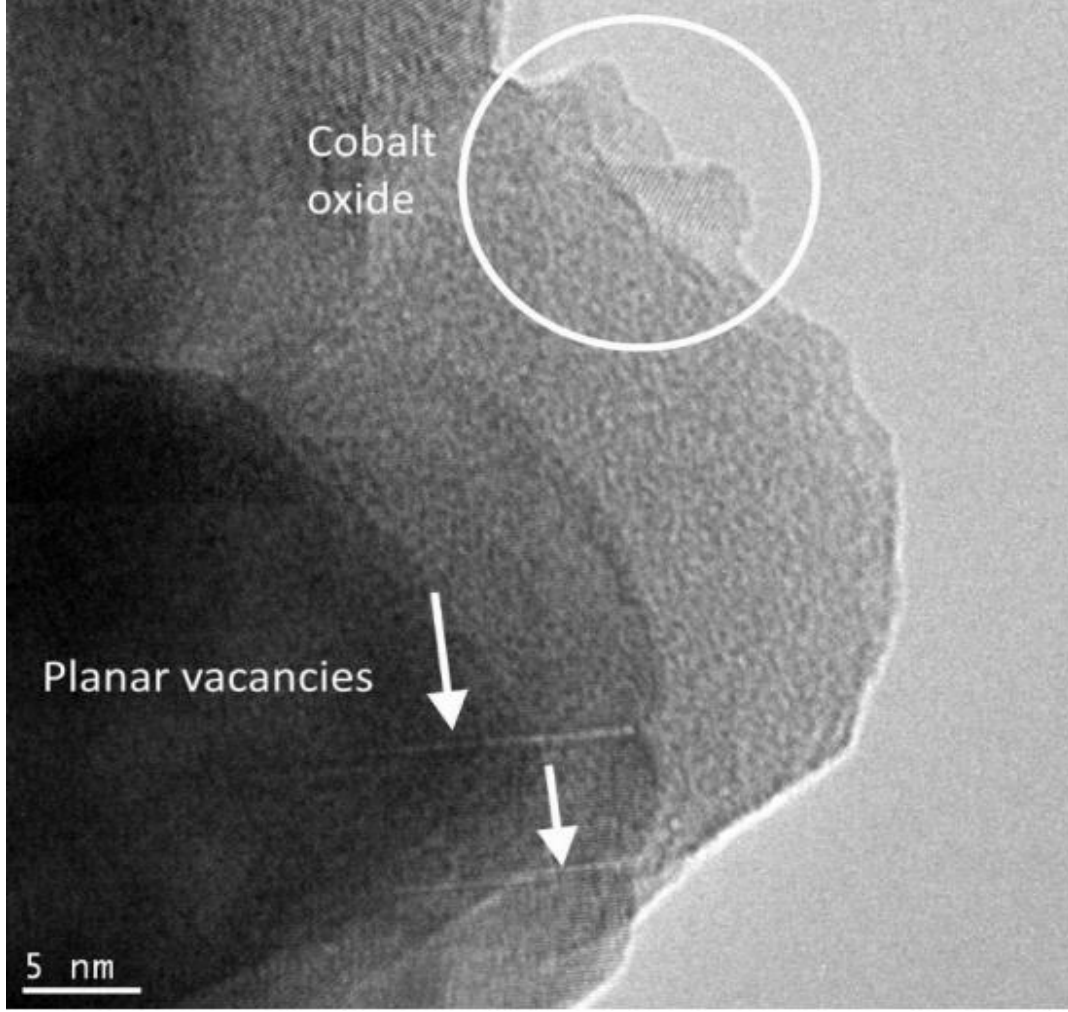
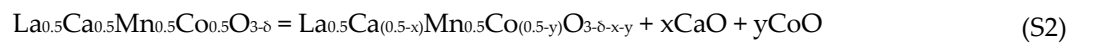
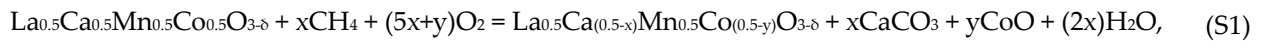


Figure S2. HRTEM image of the sample after the reaction. White arrows show planar vacancies. Co_3O_4 particles are shown by white circle.

The chemical equations of decomposition process in CH_4 and He are shown below:



The quasichemical equations of vacancies formation are shown below:

