

LETTER

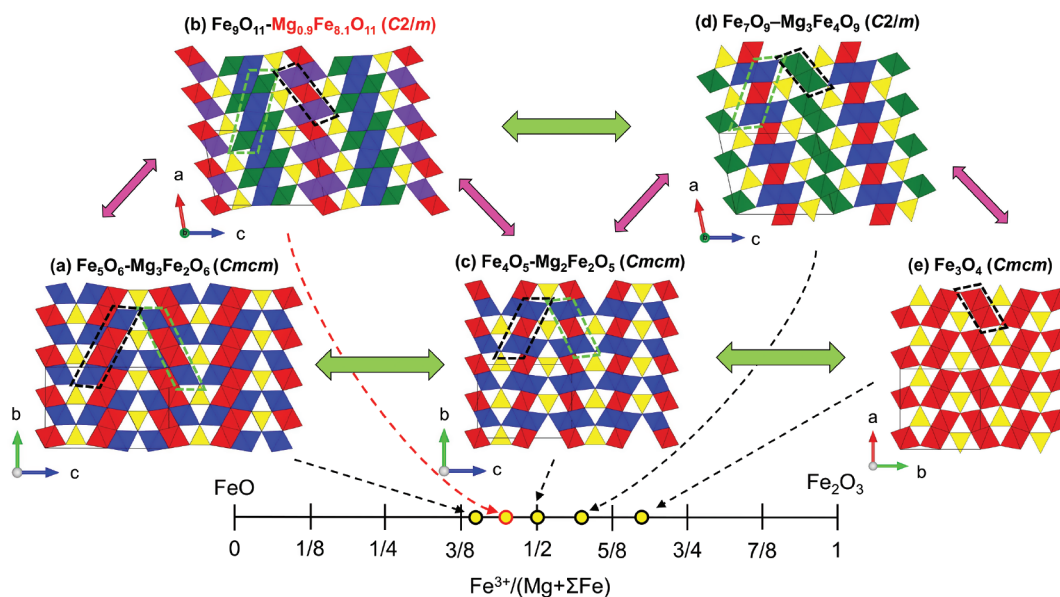
Synthesis and crystal structure of Mg-bearing Fe_9O_{11} : New insight in the complexity of Fe-Mg oxides at conditions of the deep upper mantle

TAKAYUKI ISHII^{1,*}, LAURA UENVER-THIELE², ALAN B. WOODLAND², EDITH ALIG³, AND TIZIANA BOFFA BALLARAN¹

¹Bayerisches Geoinstitut, Universität Bayreuth, D-95440 Bayreuth, Germany

²Institut für Geowissenschaften, Goethe-Universität Frankfurt, Altenhöferallee 1, D-60438 Frankfurt am Main, Germany

³Institut für Anorganische und Analytische Chemie, Goethe-Universität Frankfurt, Max-von-Laue-Str. 7, D-60438 Frankfurt am Main, Germany



SUPPLEMENTAL FIGURE S1. Structural relationships among high-pressure Mg-Fe oxides as a function of $\text{Fe}^{3+}/(\text{Mg} + \Sigma\text{Fe})$ ratio. (a) Fe₅O₆-Mg₃Fe₂O₆ (Lavina et al. 2015; Uenver-Thiele et al. in preparation) (b) Fe₉O₁₁-MgFe₈O₁₁ (Woodland et al. 2016; this study) (c) Fe₄O₅-Mg₂Fe₂O₅ (Lavina et al. 2011; Boffa Ballaran et al. 2015) (d) Fe₇O₉-Mg₃Fe₄O₉ (Sinmyo et al. 2016; Uenver-Thiele et al. 2017) (e) CT-type Fe₃O₄ (Haavik et al. 2000). Non-equivalent sites are indicated by different colors. Black dashed boxes are edge-shared octahedral chains. Green dashed boxes represent incorporated chains from structures with higher Fe^{3+} content in the sequence of smaller two-way arrows. Larger two-way arrows indicate incorporation or removal of two single octahedral chains. Smaller two-way arrows represent incorporation or removal of one of the single octahedral chain. Unit-cells are represented using solid-line boxes.

* E-mail: takayuki.ishii104@gmail.com