

Supporting information (SI) for:

Relationship between Bandgap and Photoluminescence Properties of Pr³⁺-activated Complex Perovskite Oxide by Cation–Nitrogen Substitution

Suzuka Noda^{†ab}, Yasushi Sato^{†a}, Takuya Hasegawa^b, Masato Kakihana^{bc}, Shu Yin^{bd}

^a Department of Chemistry, Faculty of Science, Okayama University of Science, 1-1 Ridai-cho, Kita-ku, Okayama 700-0005, Japan

^b Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan.

^c SANKEN, Osaka University, 8-1 Mihogaoka, Ibaraki, Osaka 567-0047, Japan.

^d Advanced Institute for Materials Research, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan.

†Corresponding author:

Dr. Yasushi Sato

E-mail: satoy@ous.ac.jp

Ms. Suzuka Noda

E-mail: noda.suzuka.r1@dc.tohoku.ac.jp

Contents

- Figure S1. Excitation ($\lambda_{em} = 495$ nm) and emission ($\lambda_{ex} = 254$ nm) spectra for Pr³⁺-activated CaTa_{2/3}Mg_{1/3}O₃ (CTMO) sample
- Figure S2. (a) FE-SEM image and (b) enlarged image of the sample with $x = 0.75$ (CaTa_{9/4}Mg_{3/4}O_{11/4}N_{1/4})
- Figure S3. (a) Excitation and emission spectra of Pr³⁺-activated and undoped samples with $x = 0.95$ (CaTa_{41/20}Mg_{19/20}O_{59/20}N_{1/20}), and (b) their difference spectra between Pr³⁺-activated and undoped ones

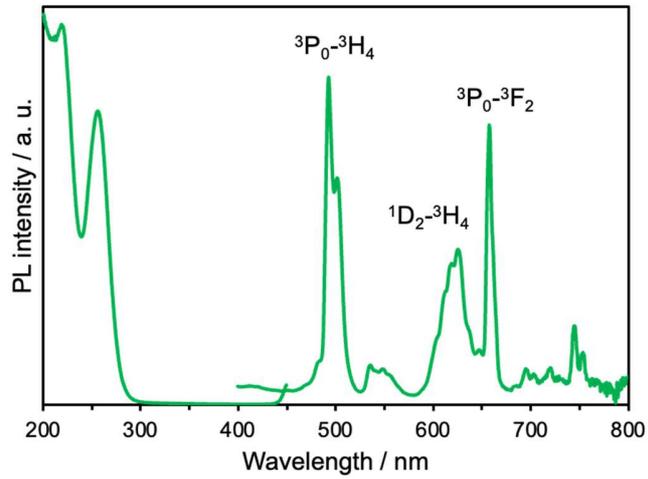


Figure S1. Excitation ($\lambda_{em} = 495$ nm) and emission ($\lambda_{ex} = 254$ nm) spectra for Pr^{3+} -activated $\text{CaTa}_{2/3}\text{Mg}_{1/3}\text{O}_3$ (CTMO) sample

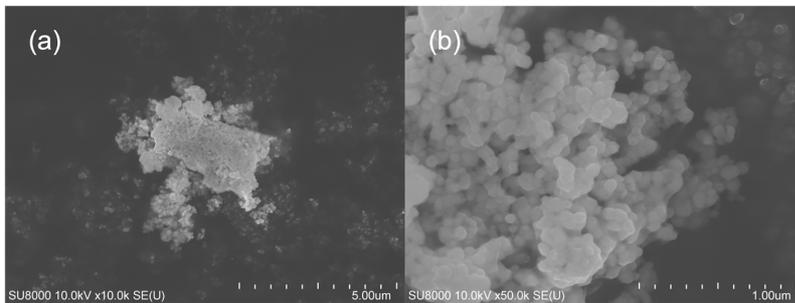


Figure S2 (a) FE-SEM image and (b) enlarged image of the sample with $x = 0.75$ ($\text{CaTa}_{9/4}\text{Mg}_{3/4}\text{O}_{11/4}\text{N}_{1/4}$)

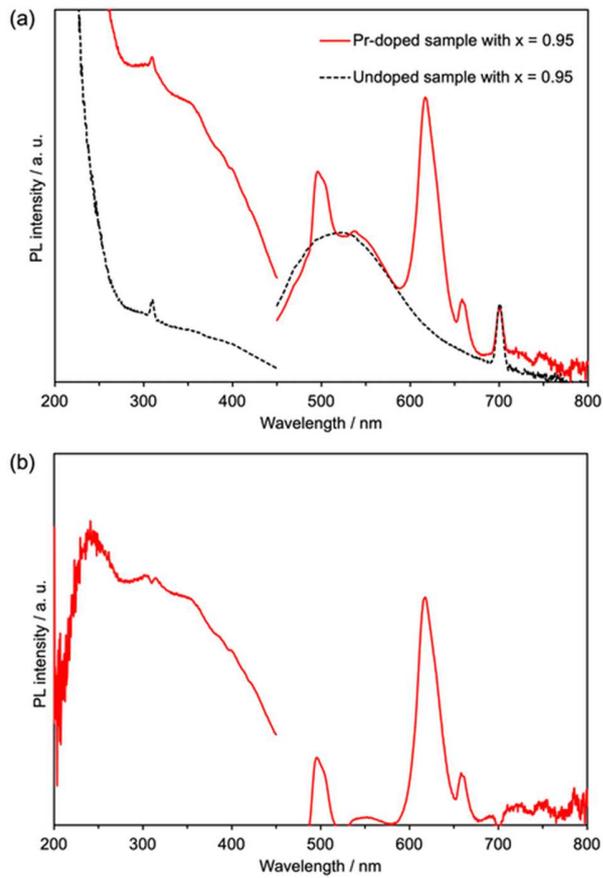


Figure S3 (a) Excitation and emission spectra of Pr³⁺-activated and undoped samples with $x = 0.95$ (CaTa_{41/20}Mg_{19/20}O_{59/20}N_{1/20}), and (b) their difference spectra between Pr³⁺-activated and undoped ones