Supporting Information

Improvement of Luminescence Properties of Rubidium Vanadate, $RbVO_3$ Phosphor by Erbium Doping in the Crystal Lattice

S. W. Kim,[a,†,*] T. Hasegawa,[a,‡] M. Muto,[a] A. Toda,[a] T. Kaneko,[a] K. Sugimoto,[a] K. Uematsu,[a] T. Ishigaki,[a] K. Toda,[a,*] M. Sato,[d] J. Koide,[e] M. Toda,[e] and Y. Kudo[e]

[a] Graduate School of Science and Technology, Niigata University, 8050 Ikarashi 2-nocho, Niigata 950-2181, Japan. E-mail: ktoda@eng.niigata-u.ac.jp

[b] Department of Chemistry and Chemical Engineering, Niigata University, 8050 Ikarashi 2-nocho, Niigata 950-2181, Japan

[c] N-Luminescence Corporation, 8867-3 Ikarashi 2-nocho, Niigata 950-2102, Japan

[†] Current address: Department of Nanotechnology and Advanced Material Engineering, Sejong University, 209 Neungdong-ro, Gwangjin-gu, Seoul 05006, Republic of Korea. E-mail: skim80@sejong.ac.jp

[‡] Current address: Department of Marine Resource Science, Faculty of Agriculture and Marine Science, Kochi University, 200 Otsu, Monobe, Nankoku City, Koch 783-8502, Japan

*Corresponding Author

Sun Woog Kim; E-mail: skim@eng.niigata-u.ac.jp

Kenji Toda; E-mail: ktoda@eng.niigata-u.ac.jp

Contents

Table S1 Lattice parameters of the $Rb_{1-x}Er_xVO_3$ (x = 0 and 0.01) phosphors determined by Rietveld refinement analysis.

	$x = 0$	$x = 0.01$
a (nm)	0.52678(5)	0.52669(5)
b (nm)	1.1440(1)	1.1436(1)
c (nm)	0.57243(5)	0.57242(5)
V (nm^3)	0.34497(5)	0.34480(6)

Crystal system: Orthorhombic, Space group: Pbcm

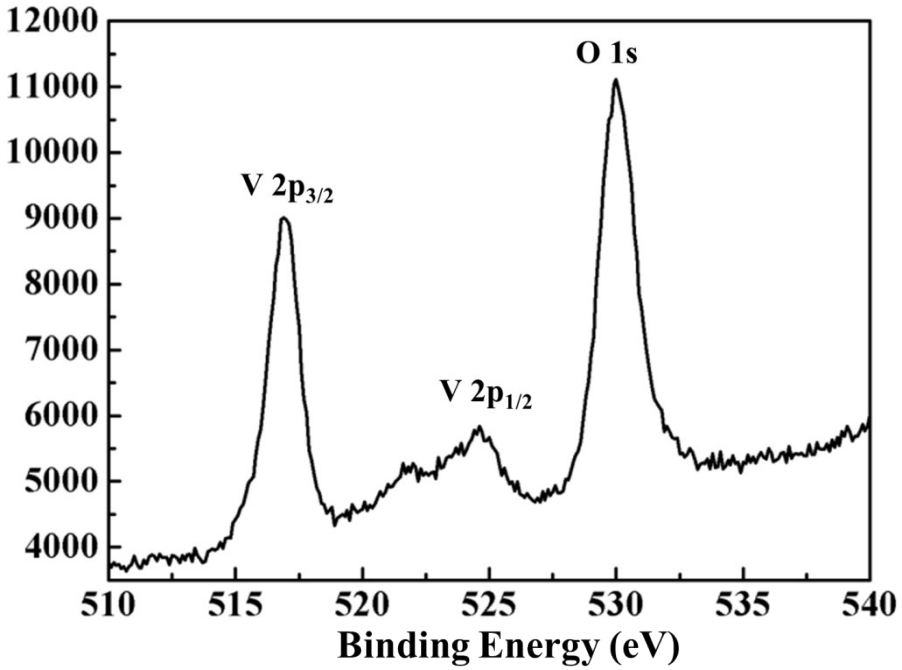

Fig. S1. XPS spectrum of V 2p core-levels for the $Rb_{0.99}Er_{0.01}VO_3$ phosphor.

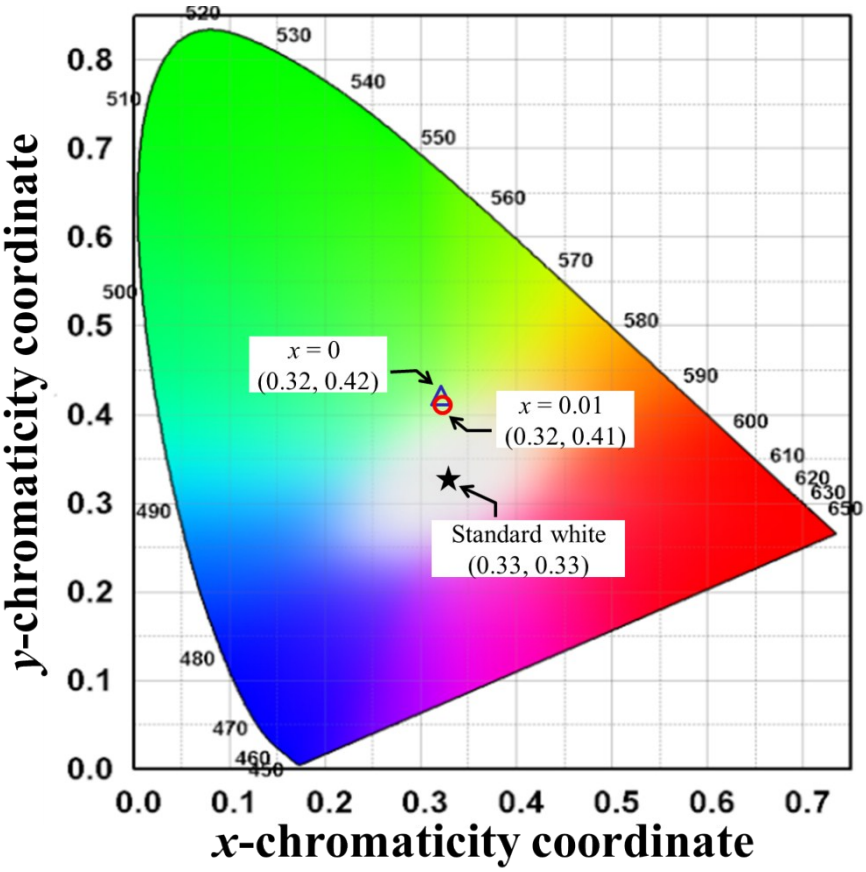

Fig. S2. CIE chromaticity diagram for the $Rb_{1-x}Er_xVO_3$ (x = 0 and 0.01) phosphors.

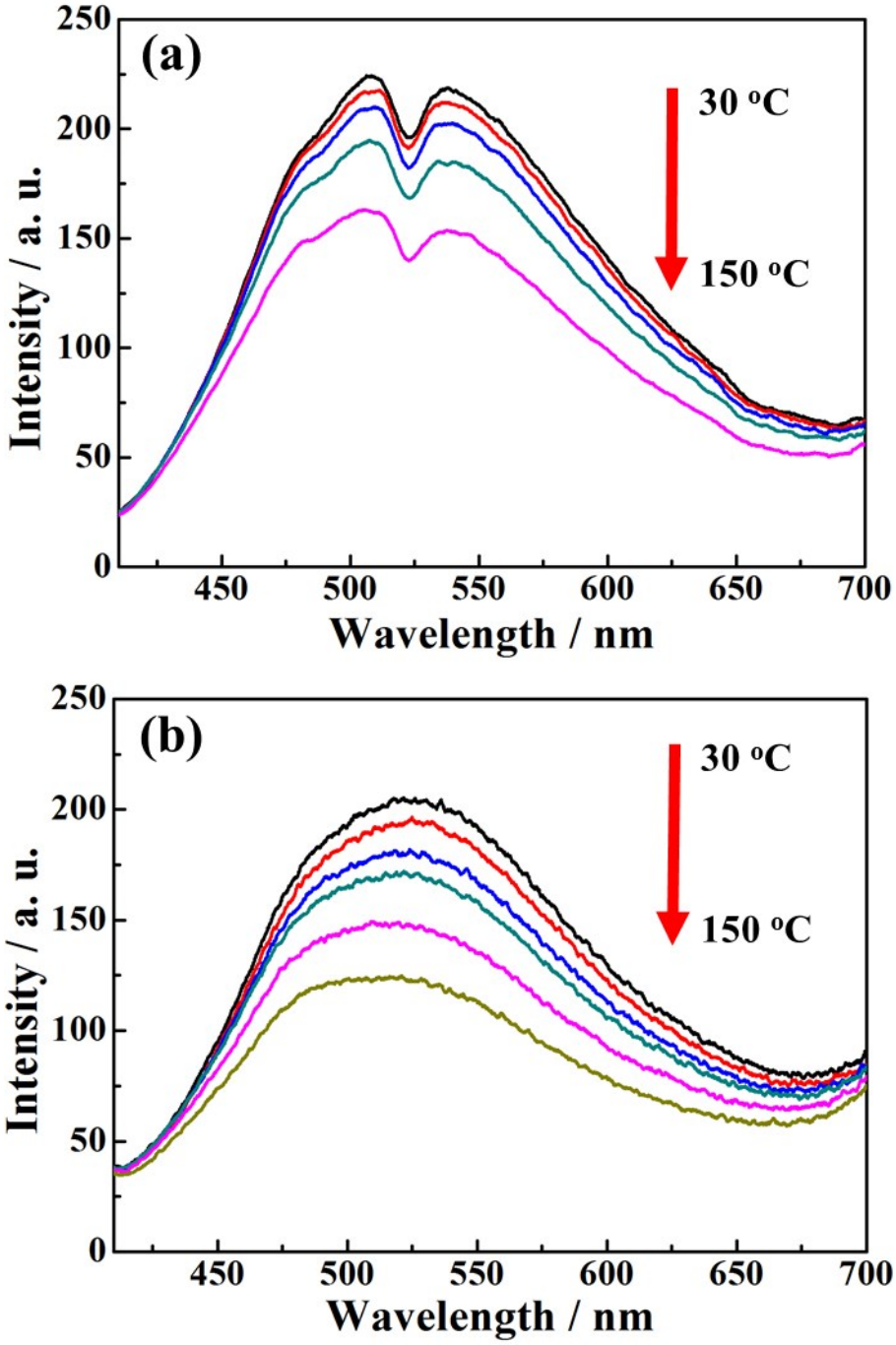

Fig. S3. Temperature dependence of the emission spectra of the $Rb_{1-x}Er_xVO_3$ (x = 0 and 0.01) phosphors under excitation at 360 nm.