Electronic Supplementary Material (ESI) for Dalton Transactions.

Supporting Information

Development of thermally-stable red-emitting lead-free double-perovskite phosphors with an internal PLQY approaching 100%

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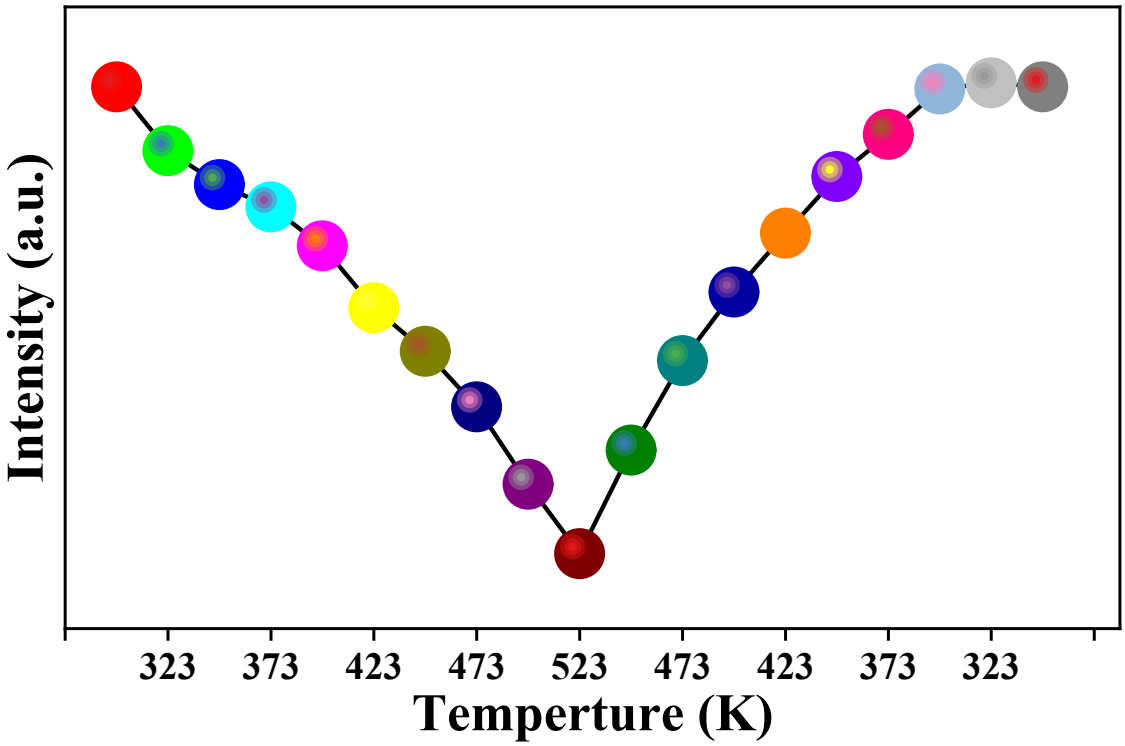

Fig. S1. The thermal cycle measurement of CSTO: 0.4Eu^{3+} phosphors.

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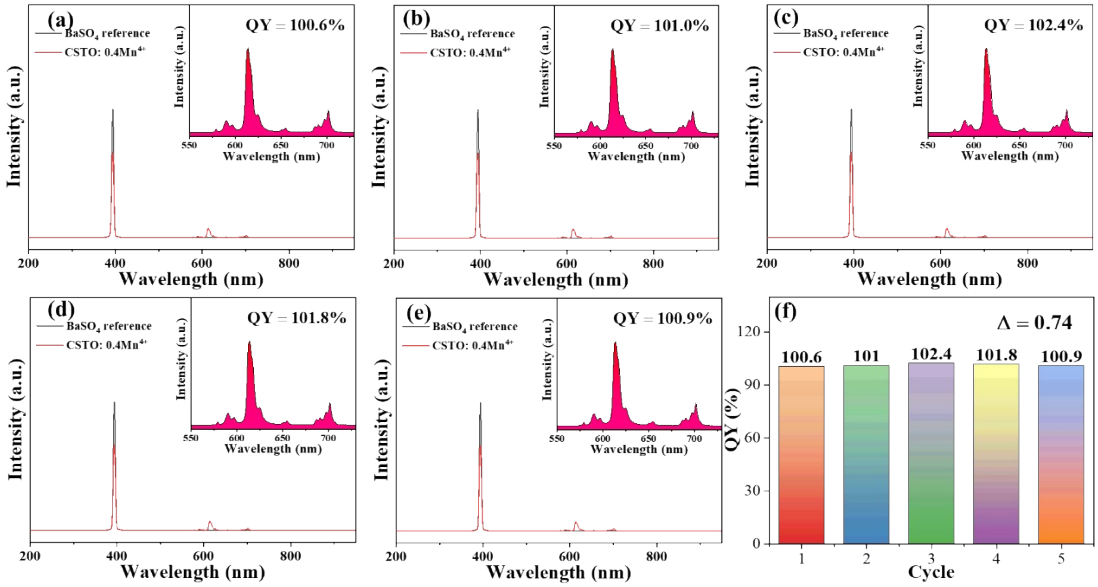

Fig. S2. Excitation line of $BaSO_4$ reference and PL QY measurement of the synthesized CSTO: $0.4Eu^{3+}$ phosphors under the (a) 1, (b) 2, (c) 3, (d) 4, and (e) 5 cycle. All insets show a sample enlarged emission spectrum in 550-730 nm range in corresponding cycle. (f) the PL QY values of 1-5 cycles.

Verification report for PLQY

FOUNDATION FOR INDUSTRY COOPERATION. UNIVERSITY OF ULSAN NO. 2023-0001

Total-period Analysis Center for Ulsan Chemical Industry (TACU)

CORE FACILITY

Address : (44776) 12, Technosaneop-ro 55beon-gil, Nam-gu, Ulsan, Korea. Tel. +82 52-712-8028

TEST REPORT

1. Client
   Company : KyungHee University
   Address : 1732, Deogyeong-daero, Giheung-gu, Yongin-si, Gyeonggi-do 17104, Republic of Korea
2. Date of Receipt : Jun.05.2023
3. Subject of Test : Quantum Yield measurment
   Sample Name : 1
4. Test Methods : Excitation wavelength dependence of quantum yield
   Model : Hamamatsu Photonics / C11347-1
5. Test Completion Date : Jun.15.2023
6. Test Result : Attachment

2023. 06. 21

Total-Period Analysis Center for Ulsan Chemical Industry

Note1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client.

Note2. This test report shall be used only within the purpose of its defined usage and shall not be used for public relation, advertisement and lawsuit without approval of TACU

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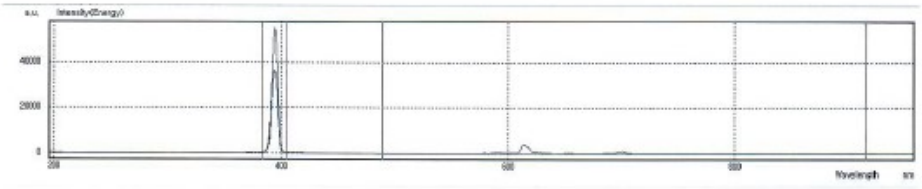
Test Result

No.	Cursor1-2(383.52-404.70nm)	Cursor3-4(489.10-915.76nm)	Quantum Yield	Abs
1	133610051	---	---	---
2	96527482	37319981	1.006	0.278
3	96491080	37503115	1.010	0.278
4	96587192	37690054	1.018	0.277
5	96487157	37458687	1.009	0.278
6	96505006	38000232	1.024	0.278

Peak Wavelength	Peak Count	Peak FWHM	Peak Wavelength	Peak Count	Peak FWHM
394.12	55226.59	5.82	882.28	22.04	1.25
394.12	36565.10	6.39	614.03	3995.77	8.27
394.12	36479.63	6.40	614.03	3985.00	8.29
394.12	36564.21	6.39	614.03	3981.97	8.29
394.12	36542.90	6.39	614.03	3968.89	8.31
394.12	36520.70	6.40	614.03	3971.74	8.30



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