Electronic Supplementary Information (ESI) for *New Journal of Chemistry*

2D-BCNO with Eu^{3+}: Partial energy transfer and direct natural white light for LEDs

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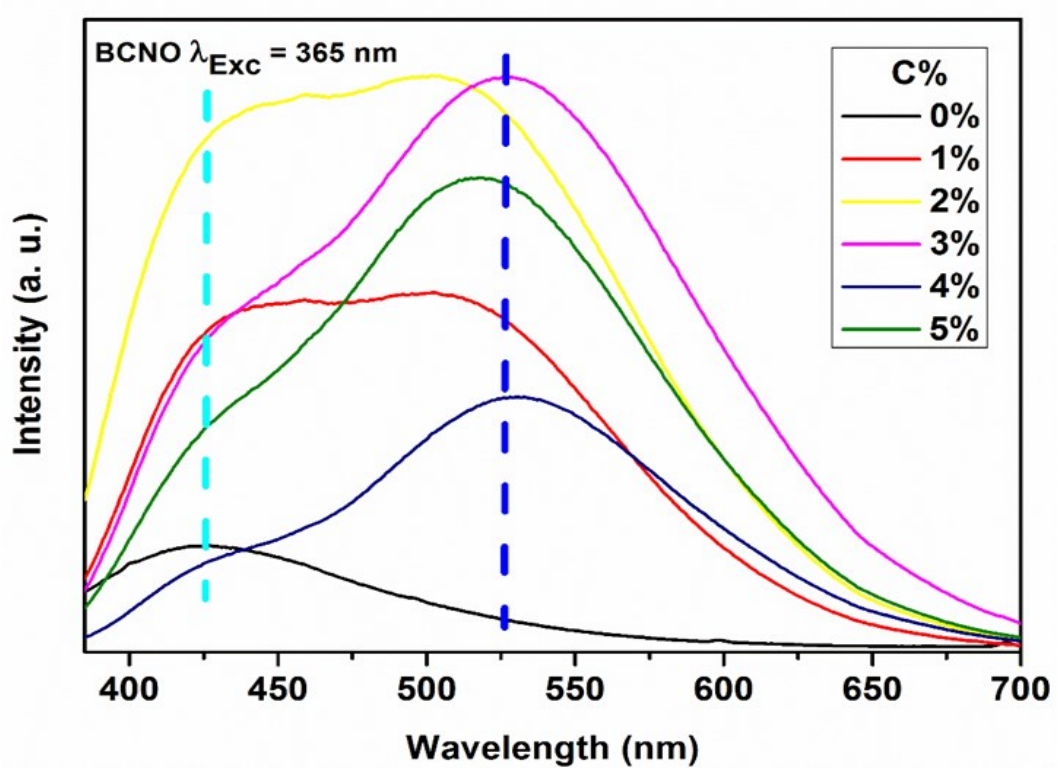

Figure S1. Photoluminescence emission Spectra of BCNO with different carbon concentration

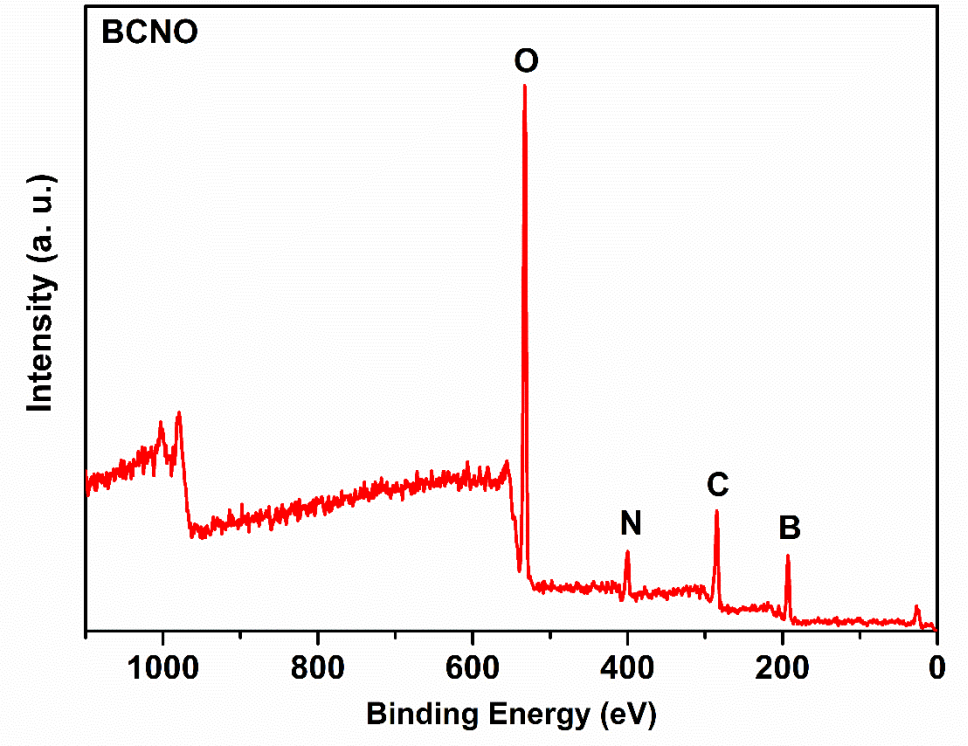

Figure S2. XPS survey scan spectrum of pristine BCNO

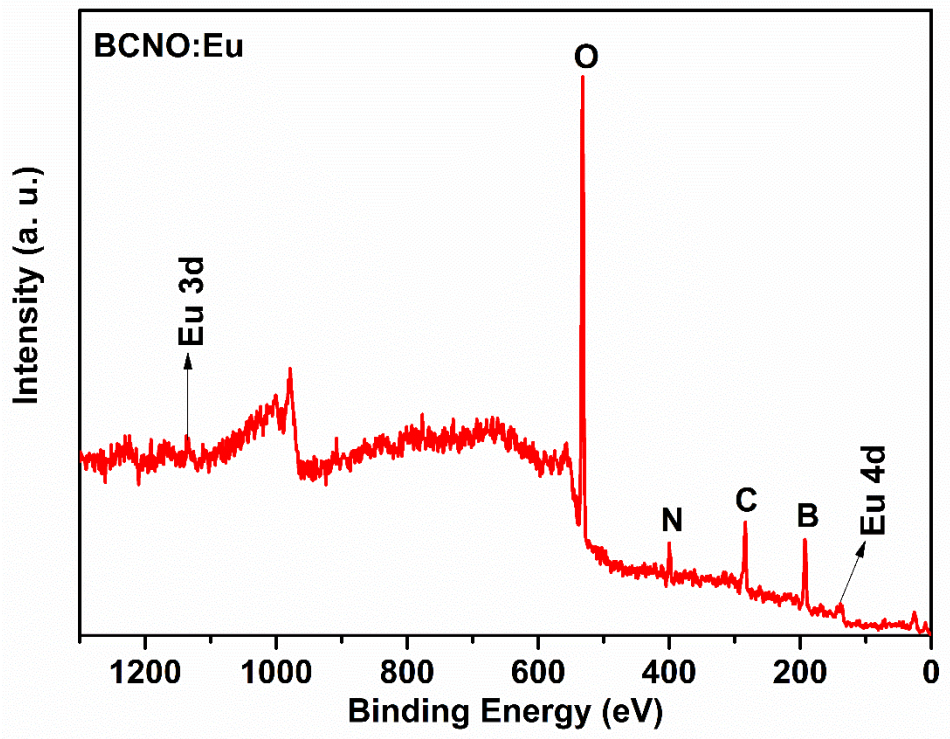

Figure S3. XPS survey scan spectrum of pristine BCNO: Eu

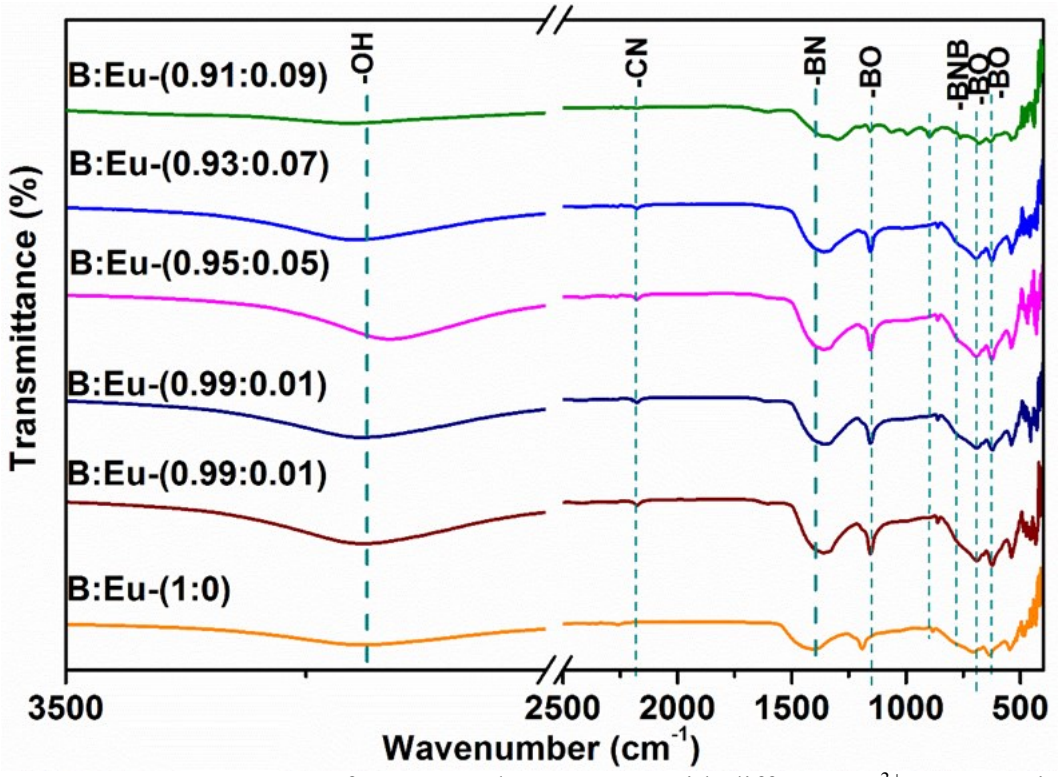

Figure S4. FTIR Spectra of BCNO and BCNO: Eu with different Eu^{3+}concentration.

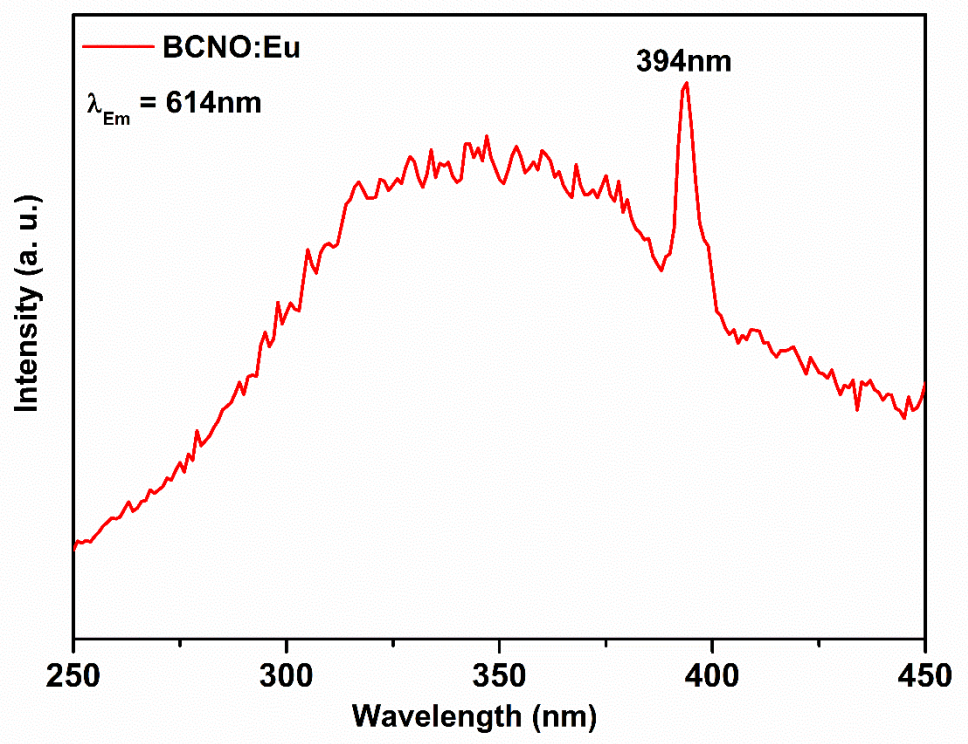

Figure S5. Photoluminescence excitation spectrum of BCNO: Eu under λ_{Em}= 614nm.

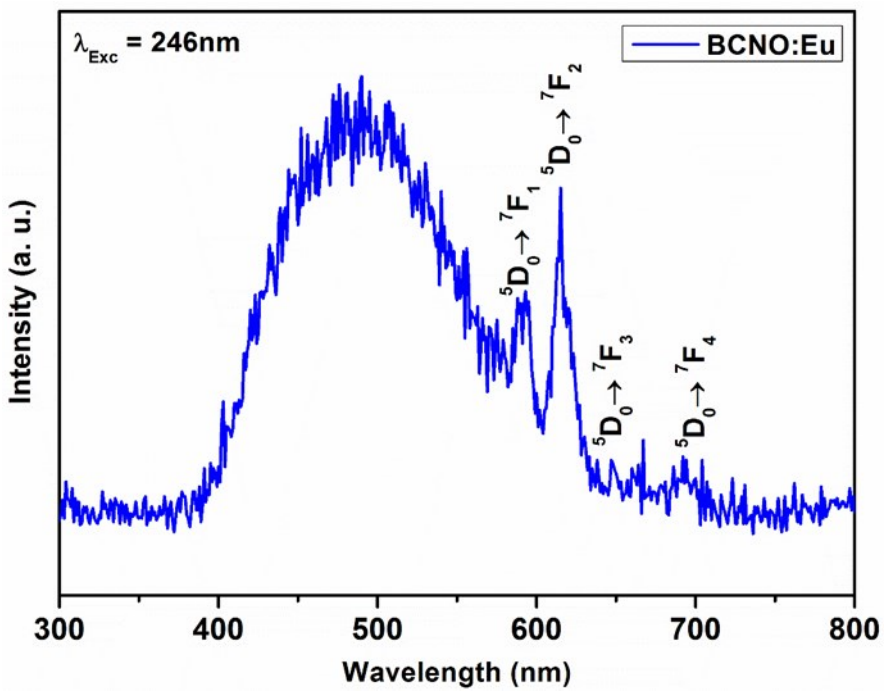

Figure S6. Photoluminescence emission spectrum of BCNO: Eu with λ_{Exc}= 246nm.

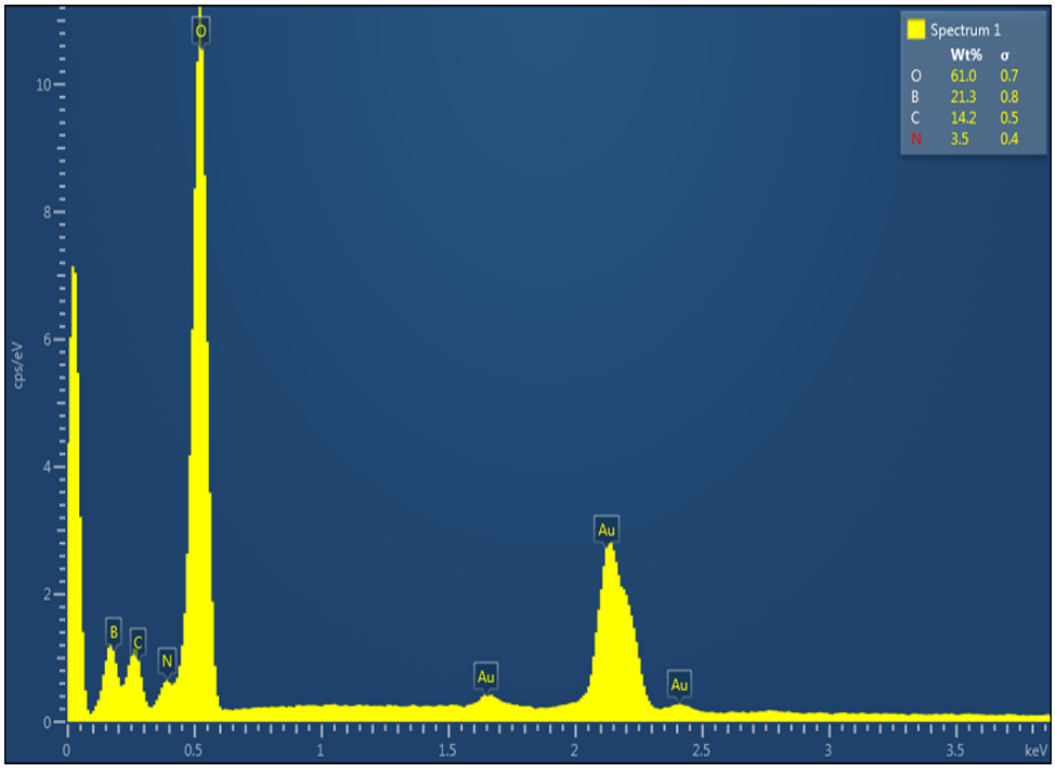

Figure S7. EDAX spectrum of 2D BCNO

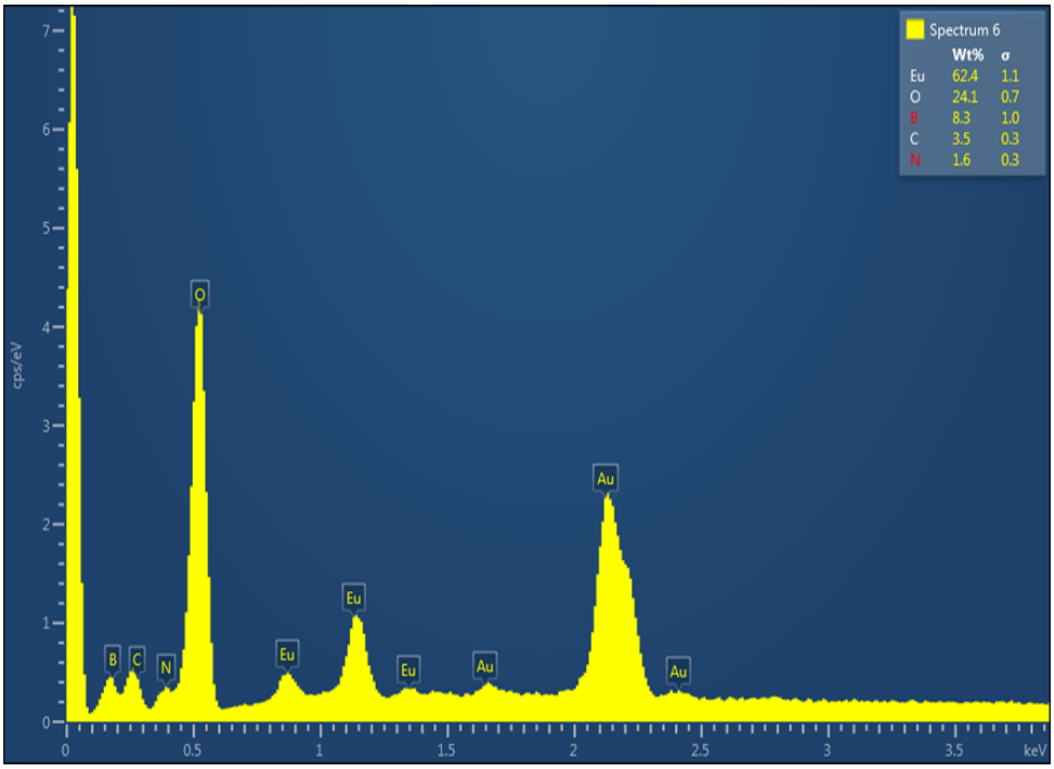

Figure S8. EDAX spectrum of 2D BCNO: Eu

Table: S1

Atomic percentage of constituent elements and composition of BCNO from SEM-EDX and XPS

Elements	Atomic percentage		Composition	
	SEM-EDX	XPS	SEM-EDX	XPS
B	27.92	23.7	1	1
C	17.26	22.6	0.61	0.85
N	3.51	6	0.12	0.19
O	51.7	47.6	1.85	1.35

Table: S2

PL quantum efficiency of BCNO and BCNO: Eu samples recorded using λ_{Exc}= 365nm

Compound	Quantum yield (%)
B:Eu	
(1:0)	28.93
(0.99:0.01)	29.94
(0.97:0.03)	26.50
(0.95:0.05)	35.52
(0.93:0.07)	54.85
(0.91:0.09)	35.77

Table: S3

Comparison of luminescence lifetime with energy transfer efficiency

Compound	τ_1(ns)	τ_2(ns)	τ_3(ns)	Energy transfer efficiency (η_T %)
B:Eu				
(1:0)	0.03346	3.32	10.32	
(0.99:0.01)	2.80	9.51	1.05	1.5%
(0.97:0.03)	3.13	9.47	0.124	5.2%
(0.95:0.05)	3.11	0.137	9.15	20.2%
(0.93:0.07)	2.84	8.69	0.116	4.4%
(0.91:0.09)	3.11	10.07	0.086	24.30%