Electronic Supplementary Material (ESI) for RSC Advances.

Unraveling the energy transfer mechanism in bismuth co-activation of $LaInO_3:Sm^{3+}/Ho^{3+}$ nanophosphor for color- tunable luminescence

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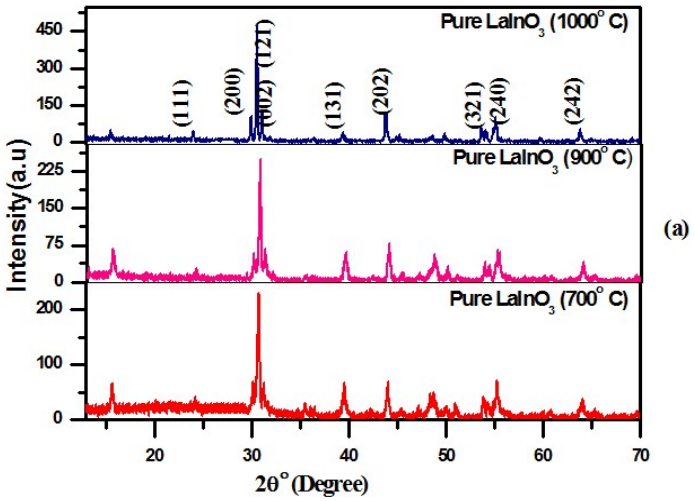


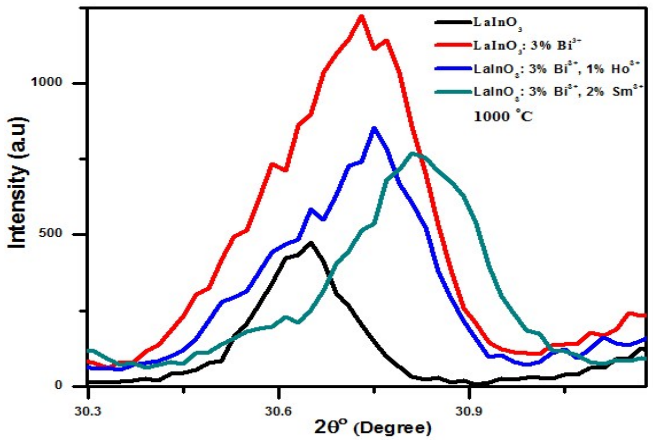
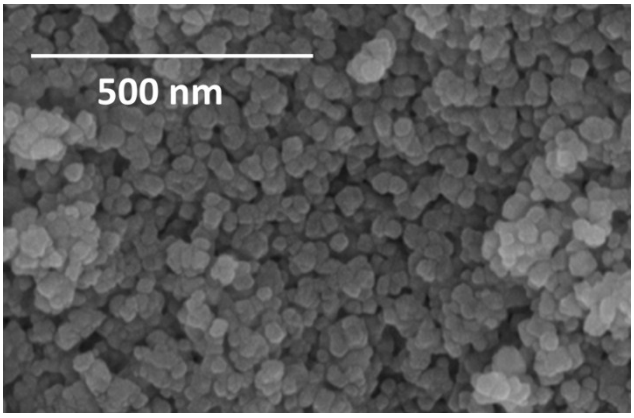
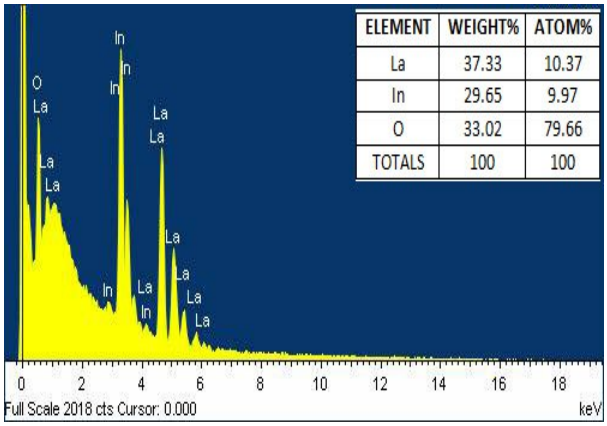


Fig 1. XRD patterns corresponding to (a) Pure $LaInO_3$ samples annealed at 700, 900 and 1000 ^oC samples (b) Comparison of shift in diffraction peak positions on doping. ($2\theta^o$ from 30.68-30.82^o).

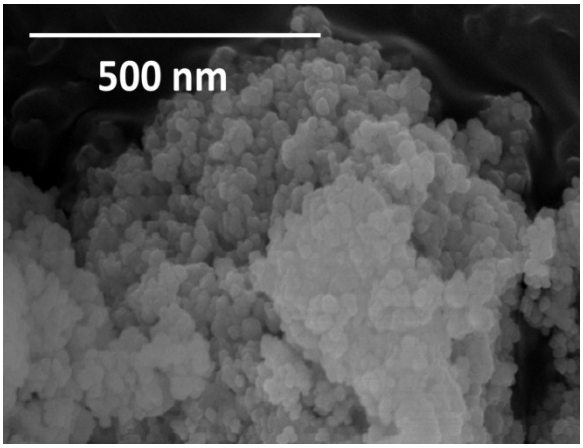
(b)

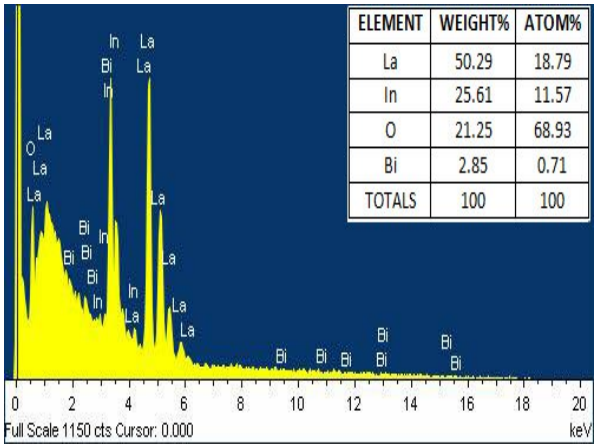




ELEMENT	WEIGHT%	ATOM%
La	37.33	10.37
In	29.65	9.97
O	33.02	79.66
TOTALS	100	100

(a)

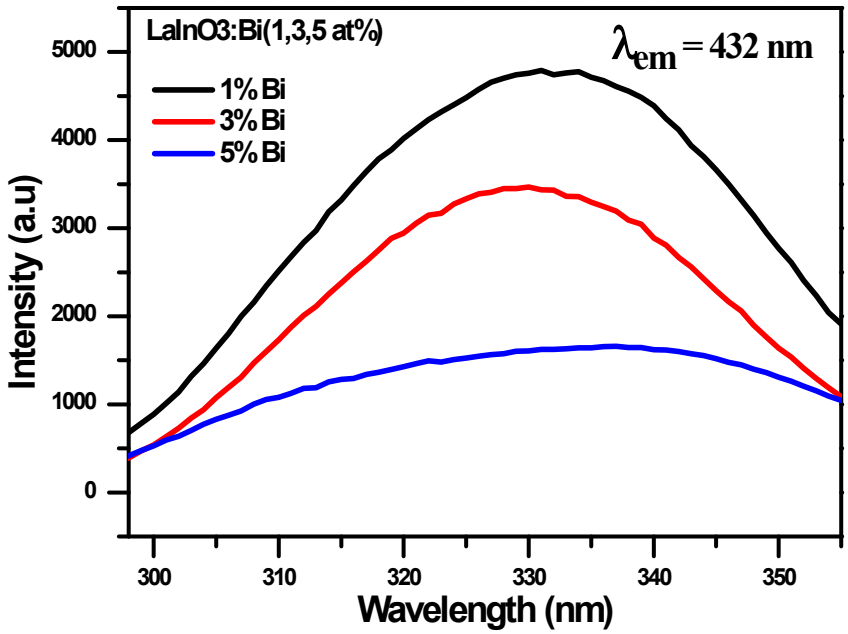




ELEMENT	WEIGHT%	ATOM%
La	50.29	18.79
In	25.61	11.57
O	21.25	68.93
Bi	2.85	0.71
TOTALS	100	100

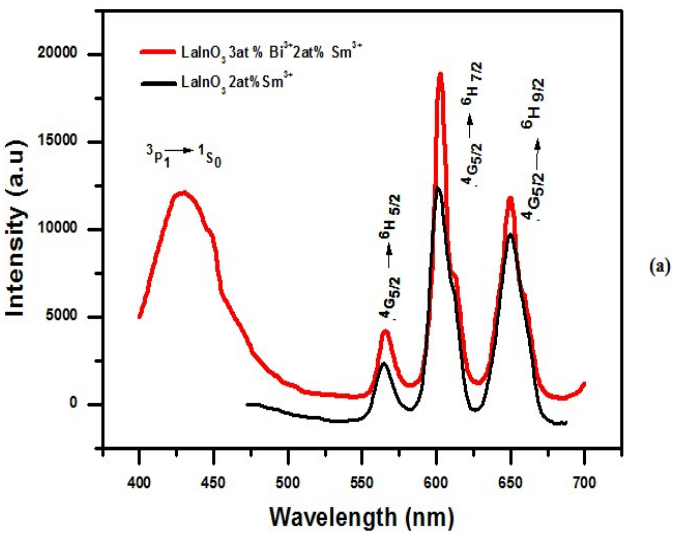
(b)

Fig 2(a-b) SEM images and EDAX spectra's of (a) Pure,(b) Bi^{3+}, doped $LaInO_3$.

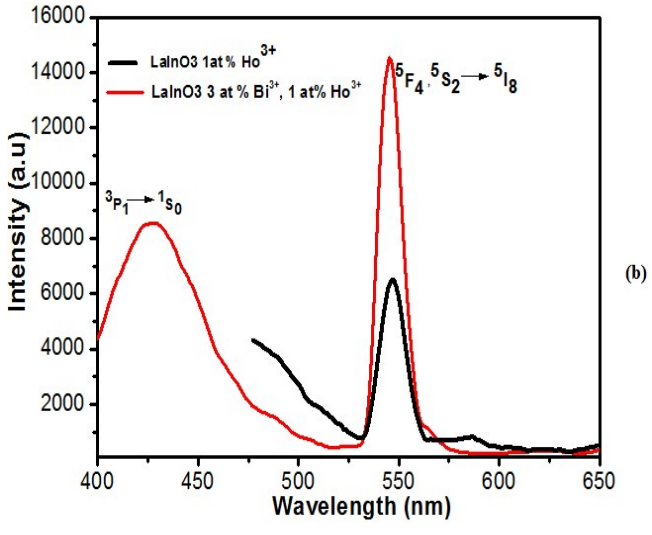


(b)

Fig. 3 Excitation spectra of $LaInO_3:Bi^{3+}$ (1, 3, 5 at%) samples heat at 1000 ^oC



(a)



(b)

Fig.4 Emission spectra of Single doped Sm^{3+} and Ho^{3+} in $LaInO_3$ with Bi^{3+} co-doping heated at 1000 ^oC

Table S1. Unit cell parameters of $LaInO_3$, $LaInO3:Bi^{3+}:Ho^{3+}/Sm^{3+}$

Compositions	a(A°)	b(A°)	c(A°)	V^3(A°)
$LaInO_3$	5.782	8.336	5. 999	289.14
$LaInO_3:Bi^{3+}$	5.724	8.245	5.928	279.76
$LaInO_3$: Bi^{3+}, Ho^{3+}	5.767	8.059	5. 912	274.76
$LaInO_3$: Bi^{3+}, Sm^{3+}	5.746	8.005	5.918	272.20