

Electronic Supplementary Information

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Title: Iron Antimonate Quantum Dots Exhibiting Tunable Visible Light Emission

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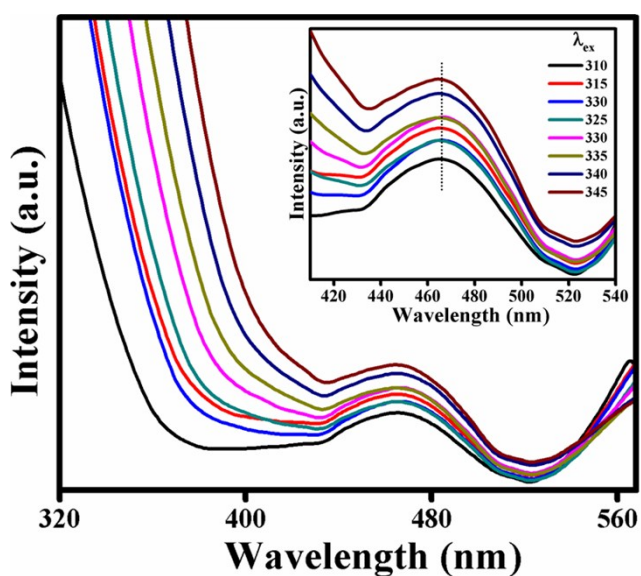


Figure S1: Excitation wavelength depended room temperature PL spectra of as prepared FeSbO₄. Inset: Close observation at ~465nm of the same PL spectra.

Table ST1: Optical parameters recorded for both the water dispersions of FeSb₃₀₀ and FeSb₄₅₀ nanoparticles using photoluminescence spectroscopic analysis at room temperature.

Sample	Excitation Wavelength (nm)	Excitation Scan (nm)	Emission Scan (nm)	Stoke's shift (nm)	CIE coordinates (x,y)
FeSb ₃₀₀	310	333	376	43	(0.16,0.06)
FeSb ₃₀₀	315	343	389	46	(0.17,0.11)
FeSb ₃₀₀	320	348	395	47	(0.17,0.11)
FeSb ₃₀₀	325	356	408	52	(0.17,0.11)
FeSb ₃₀₀	330	367	419	52	(0.17,0.11)
FeSb ₃₀₀	335	369	422	53	(0.17,0.09)
FeSb ₃₀₀	340	373	427	54	(0.17,0.10)
FeSb ₃₀₀	345	377	434	57	(0.15,0.08)
FeSb ₄₅₀	310	335	384	49	(0.16,0.07)
FeSb ₄₅₀	315	345	399	54	(0.16,0.08)
FeSb ₄₅₀	320	350	409	59	(0.16,0.09)
FeSb ₄₅₀	325	360	417	57	(0.16,0.09)
FeSb ₄₅₀	330	369	424	55	(0.16,0.09)
FeSb ₄₅₀	335	371	428	57	(0.16,0.09)
FeSb ₄₅₀	340	373	431	58	(0.16,0.09)
FeSb ₄₅₀	345	389	439	60	(0.17,0.10)

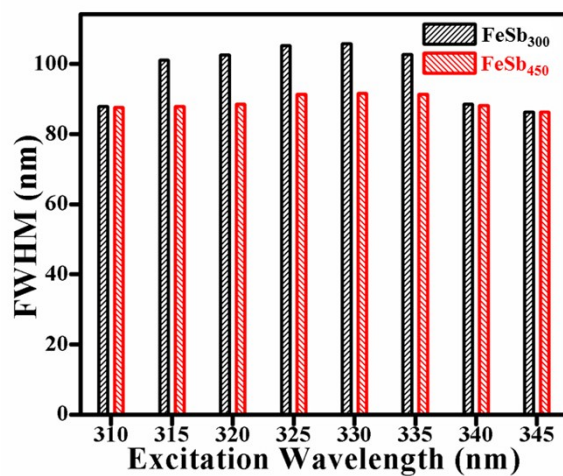


Figure S2: Variation of FWHM of PL spectra for FeSb₃₀₀ and FeSb₄₅₀ at different excitation wavelength from 310 to 345 nm.

Table ST2. Photoluminescence QY comparison of few classical QDs with the synthesized FeSb₃₀₀ and FeSb₄₅₀ nanoparticles

QDs	QY	Reference
CdSe	0.65-0.85	52-53
InP	0.01-0.40	54-55
CdTe/ CdHgTe	0.30-0.75	57-59
PbS	0.26-0.70	60-61
PbSe	0.10-0.80	62-63
ZnSe	0.81	64
FeSb ₃₀₀	8.5% (w.r.t. reference dye)	Current Work
FeSb ₄₅₀	5.4% (w.r.t. reference dye)	Current Work

Quantum Yield (QY) Calculation: We have measured the QY of the blue emission with respect to standard quinine sulphate (QY=0.54) in 0.1(M) H₂SO₄ using following formula,

$$(QY)_{\text{sample}} = (QY)_{\text{standard}} \left(\frac{I_{\text{sample}}}{I_{\text{standard}}} \right) \left(\frac{A_{\text{standard}}}{A_{\text{sample}}} \right) \left(\frac{\eta_{\text{sample}}}{\eta_{\text{standard}}} \right) [51]$$

I, stands for the integrated peak area of the fluorescence curve, A is the absorbance at excitation wavelength of the concerned sample and η is refractive index of water.

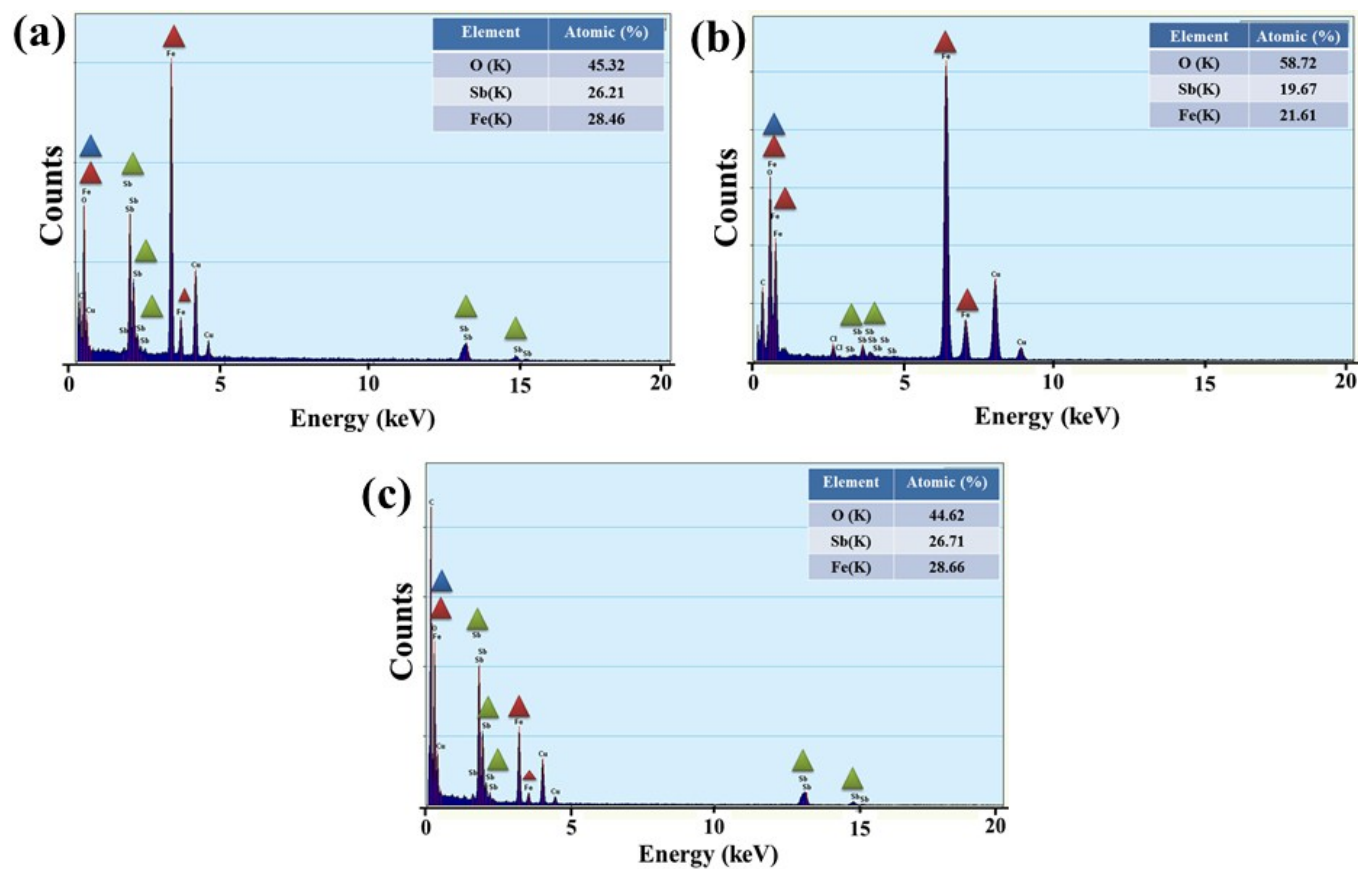


Figure S3: (a), (b) and (c) EDAX spectrum of as prepared, FeSb₃₀₀ and FeSb₄₅₀ nanoparticles along with their elemental compositional table. Fe: ▲ Sb: ▲ O: ▲