Table 1S: Positional and thermal parameters obtained after a Rietveld refinement for $EuPO_4$.

	x	***y***	***z***	**B_{iso} (Å^2)**	**Occ.**	**Site**
Eu^{3+}	0.2801(4)	0.1568(5)	0.0972(5)	0.90(5)	1	4e
P^{5+}	0.306(2)	0.160(2)	0.615(2)	1.0(2)	1	4e
O1	0.250(3)	0.008(3)	0.458(3)	1.3(2)	1	4e
O2	0.379(2)	0.333(3)	0.498(3)	1.3(2)	1	4e
O3	0.483(3)	0.113(3)	0.812(3)	1.3(2)	1	4e
O4	0.121(3)	0.197(3)	0.707(3)	1.3(2)	1	4e

Figure 1S: Tauc's plots of $EuPO_4$.

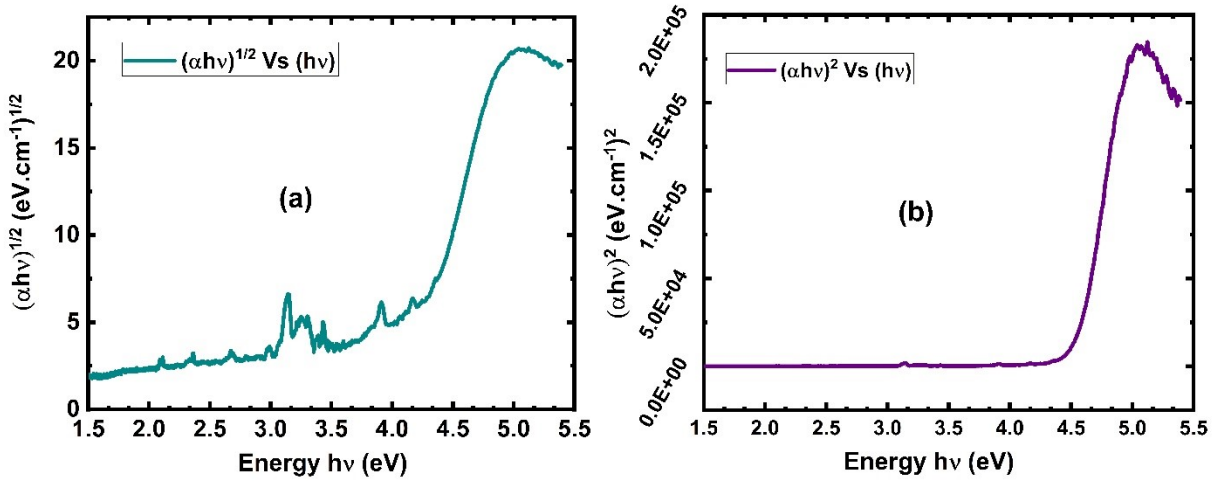

Figure 2S: Complex dielectric function ($\varepsilon_1, \varepsilon_2$) plots of $EuPO_4$.

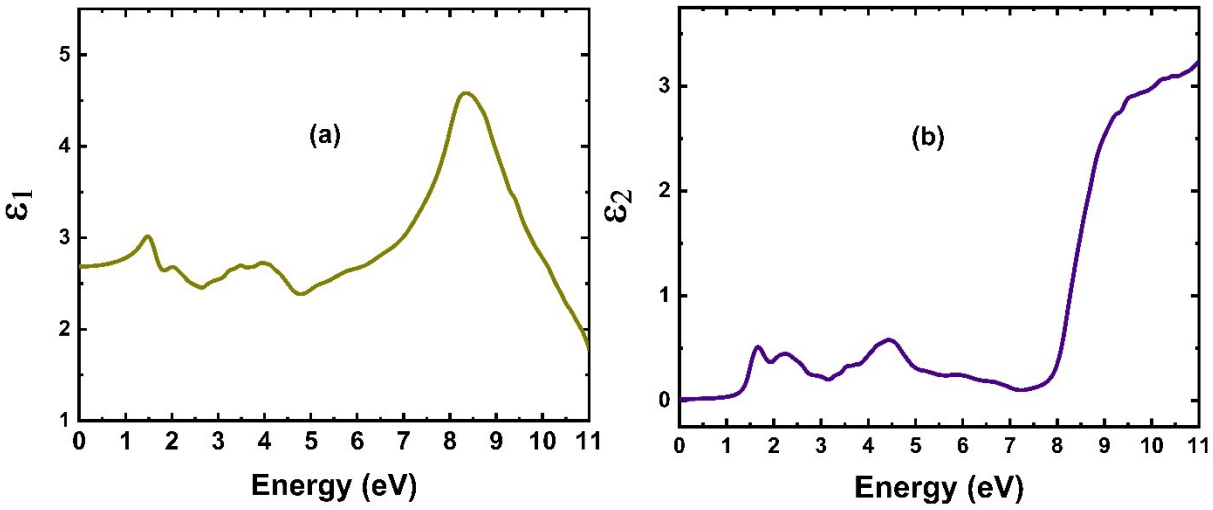

Table 2S: Comparative table: Direct/indirect Tauc plots, High symmetry points, DFT convergence tests and Optical constants for $EuPO_4$, $GdPO_4$, and $TbPO_4$, respectively.

Compound	$EuPO_4$	$GdPO_4$	$TbPO_4$
Direct/indirect Tauc plots High symmetry point	Direct gap Γ	Direct gap Γ	Direct gap Γ
DFT convergence test	10^{-4}	10^{-6}	10^{-6}
Optical constants : $\varepsilon_1(0)$, $\varepsilon_2(0)$, n(0), k(0),	 2.689, 0, 1.64, 0	 2.49, 0, 1.57, 0	 3.609 0 1.899 0