

***SUPPORTING INFORMATION* for**

**Optical and Flame-Retardant Properties of a Series of Polyimides Containing  
Side Chained Bulky Phosphaphenanthrene Units**

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**Figure S1.** Absorption spectra of **PI (1-4)** in  $\text{CHCl}_3$  (a), NMP (b) and DMAc (c) solutions.

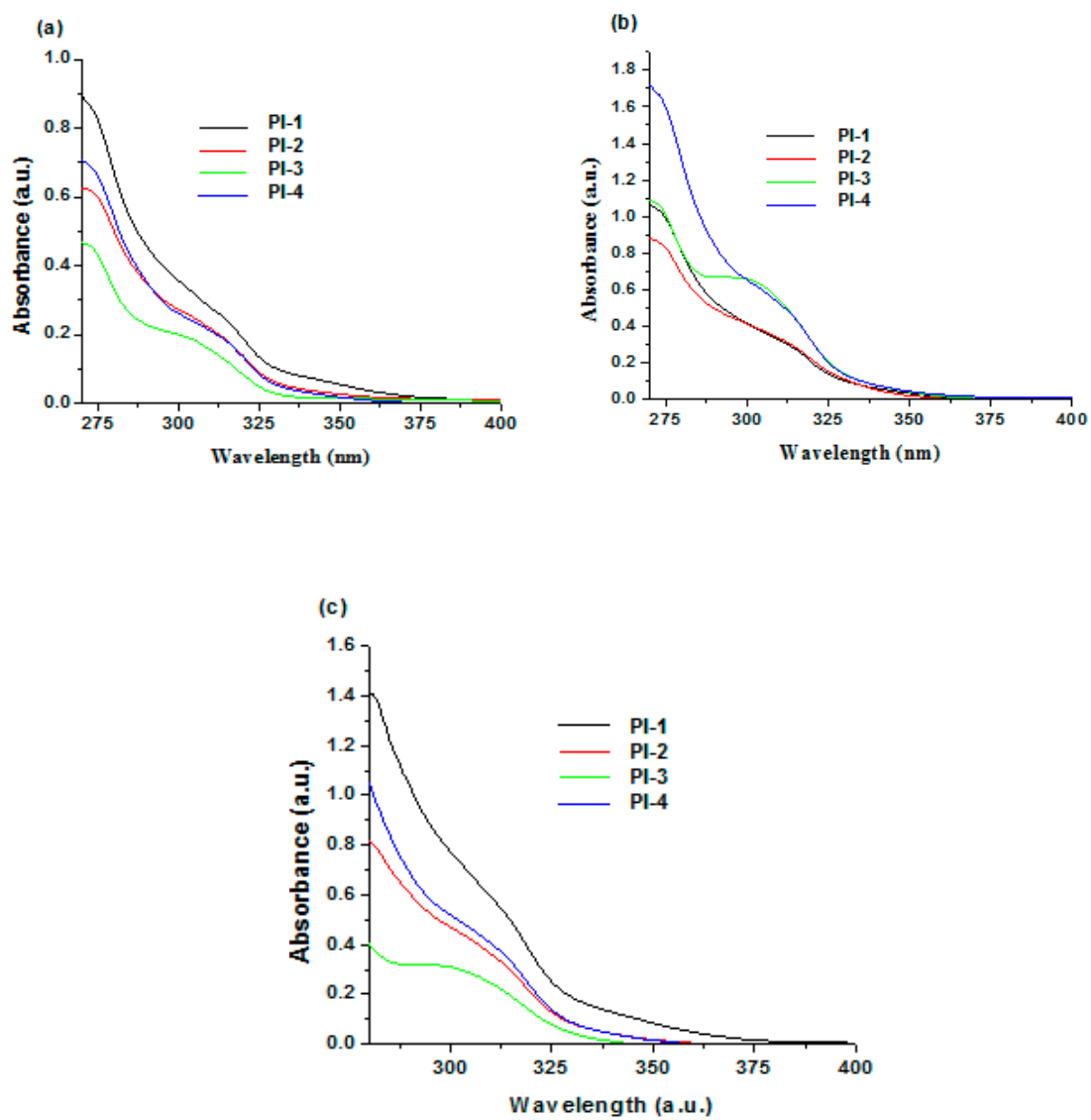
**Figure S2.** Emission spectra of **PI-2 (a)**, **PI-3 (b)**, and **PI-4 (c)** in DMF solution.

**Figure S3.** Emission spectra of **PI-1 (a)**, **PI-2 (b)**, **PI-3 (c)**, **PI-4 (d)**, in  $\text{CHCl}_3$  solution

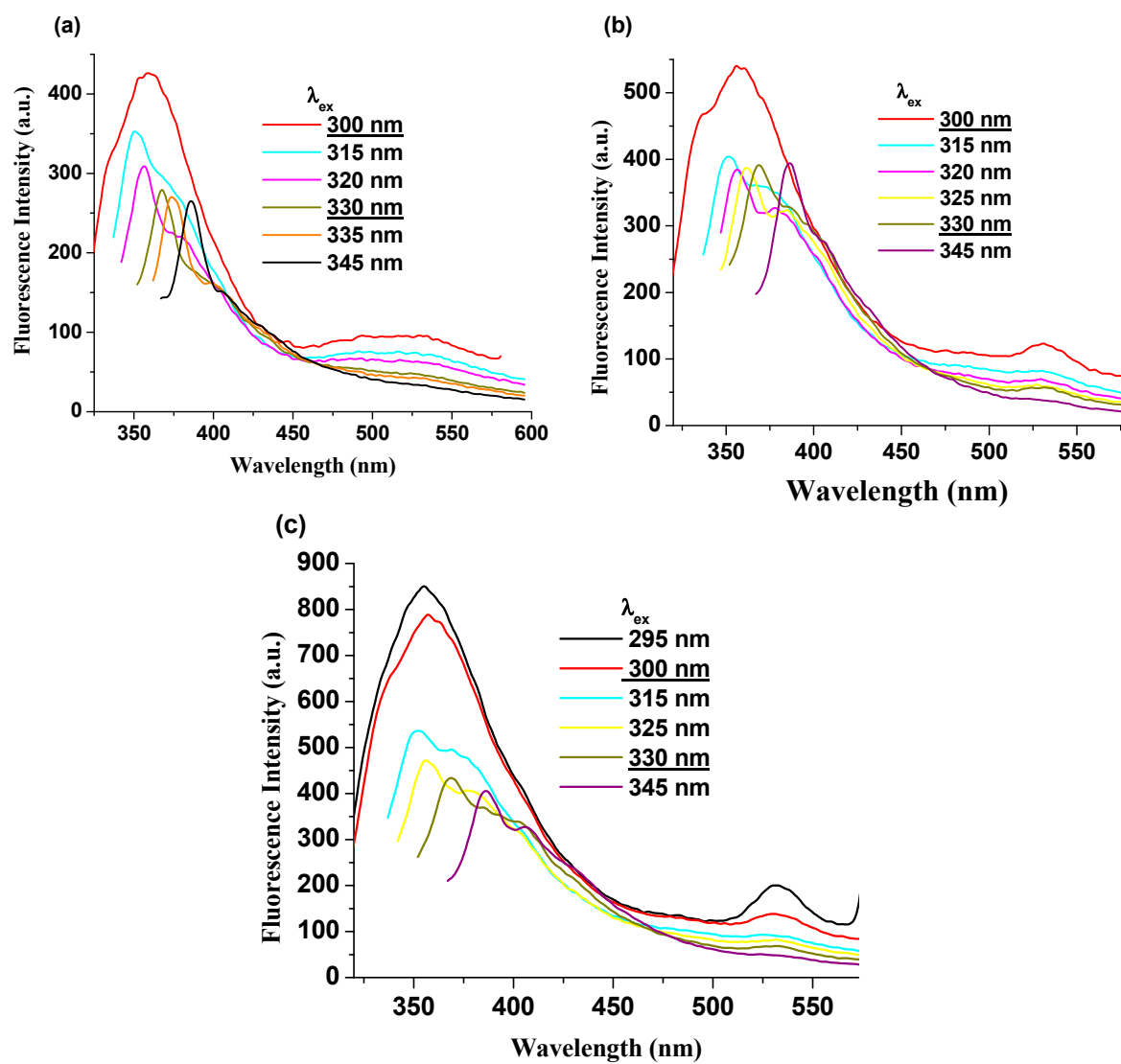
**Figure S4.** Emission spectra of **PI-1 (a)**, **PI-2 (b)**, and **PI-3 (c)** in NMP solution.

**Figure S5.** Emission spectra of **PI-1 (a)**, **PI-3 (b)**, and **PI-4 (c)** in DMAc solution.

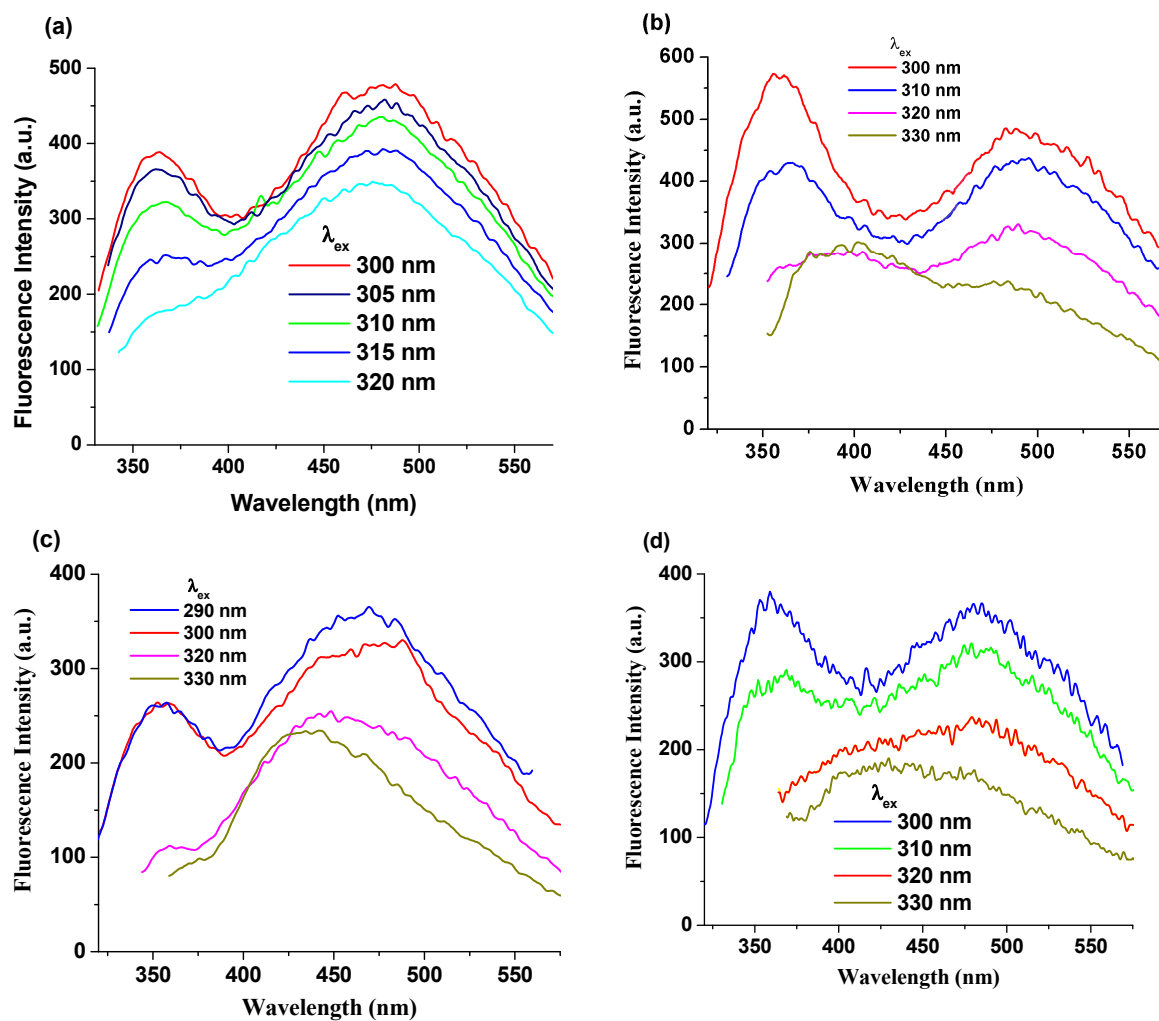
**Figure S6.** Transmission spectra for **PI (1-4)** prepared thin films.



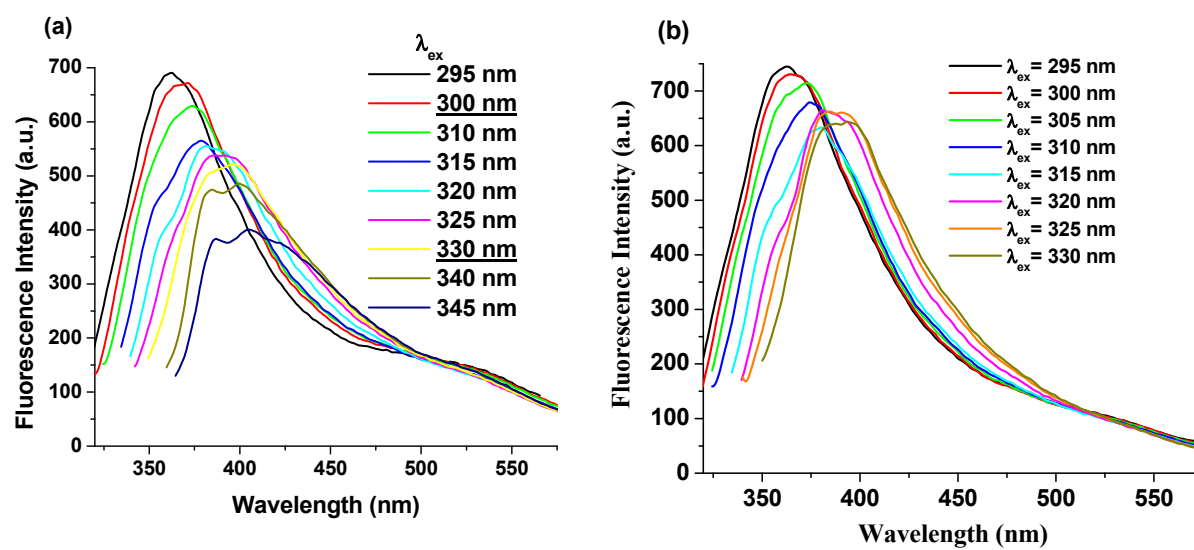
**Figure S1.** Absorption spectra of **PI (1-4)** in  $\text{CHCl}_3$  (a), NMP (b) and DMAc (c) solutions.



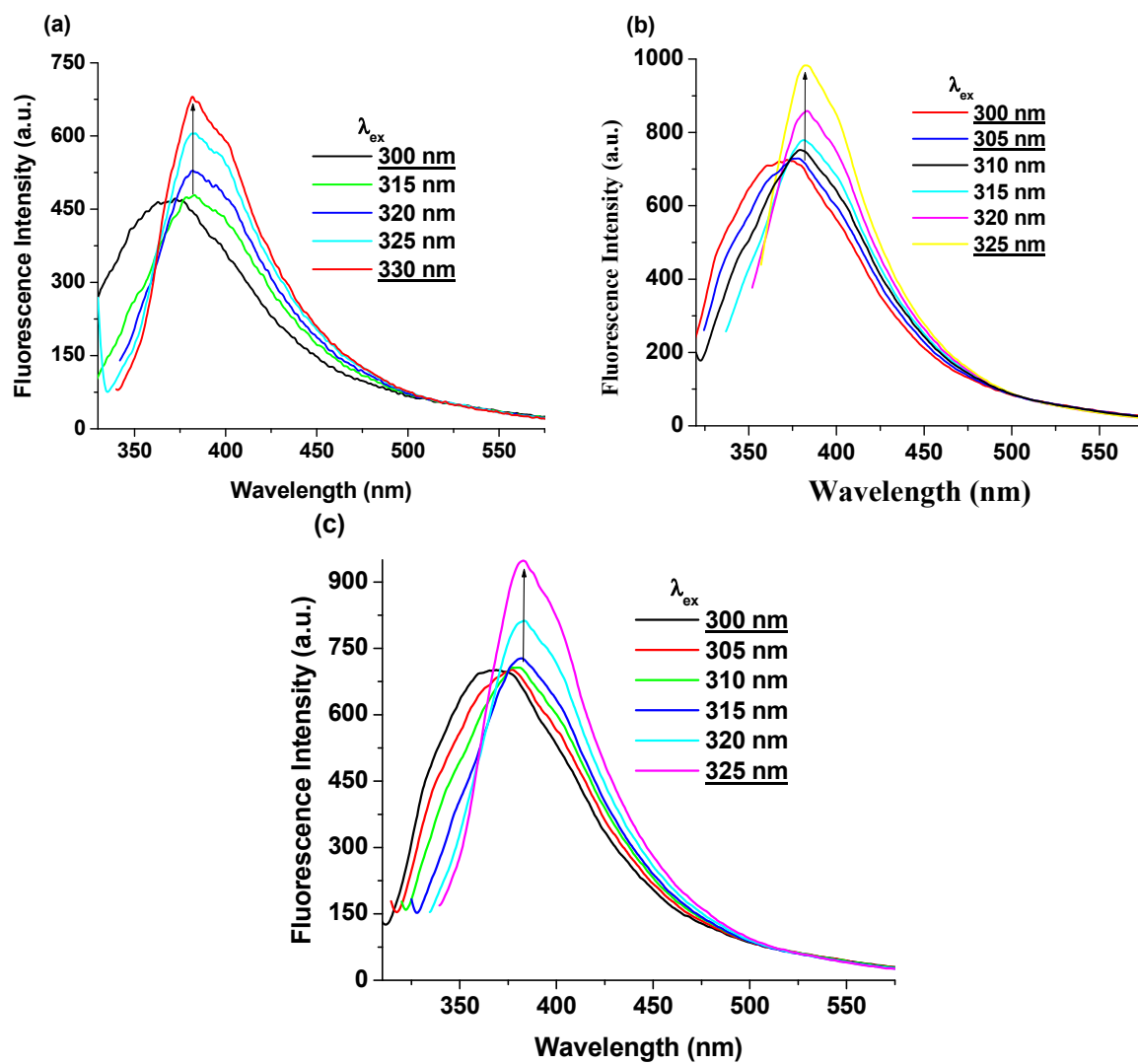
**Figure S2.** Emission spectra of PI-2 (a), PI-3 (b), and PI-4 (c) in DMF solution.



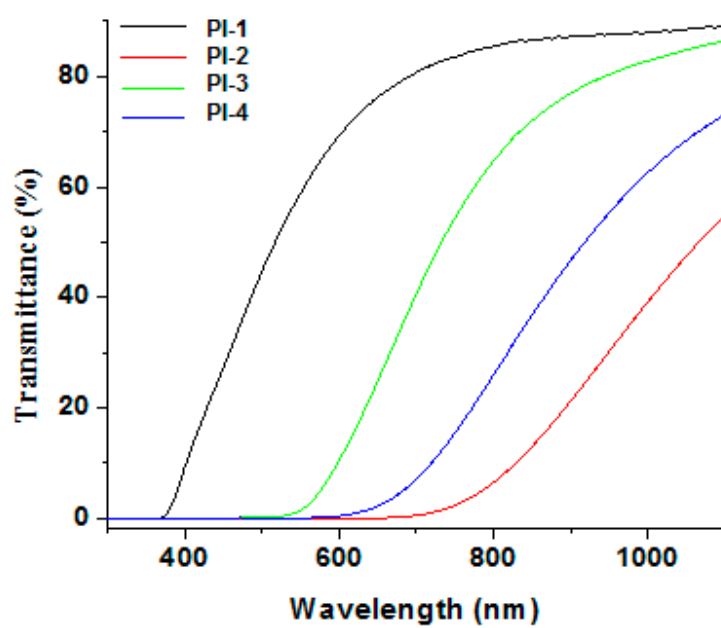
**Figure S3.** Emission spectra of PI-1 (a), PI-2 (b), PI-3 (c), PI-4 (d), in  $\text{CHCl}_3$  solution



**Figure S4.** Emission spectra of PI-1 (a), PI-2 (b), and PI-3 (c) in NMP solution.



**Figure S5.** Emission spectra of PI-1 (a), PI-3 (b), and PI-4 (c) in DMAc solution.



**Figure S6.** Transmission spectra for **PI (1-4)** prepared thin films