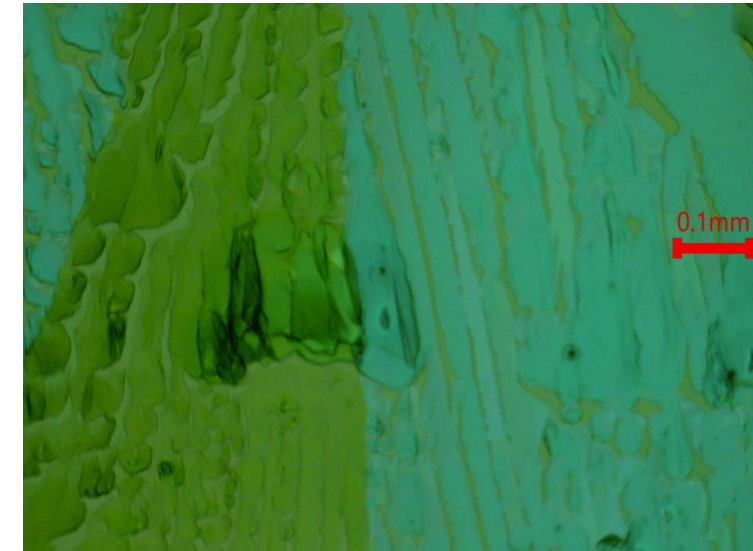
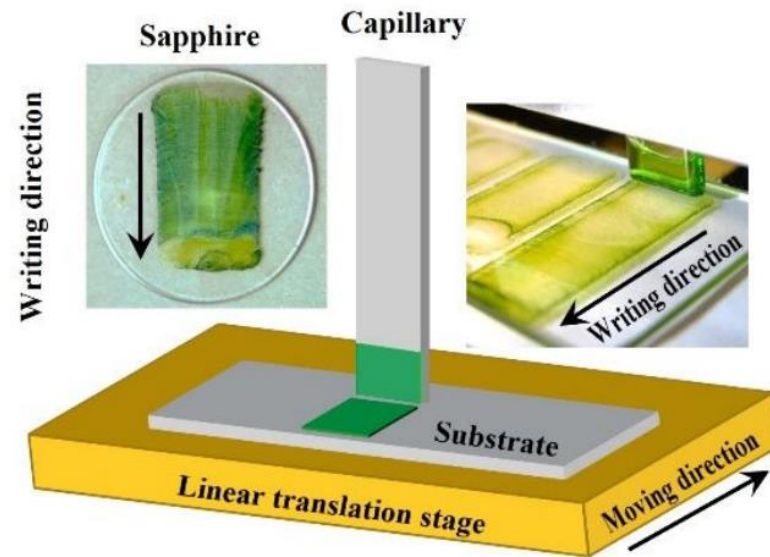




Impact of Crystalline Packing Motifs on Excitonic States in the Perforin Family



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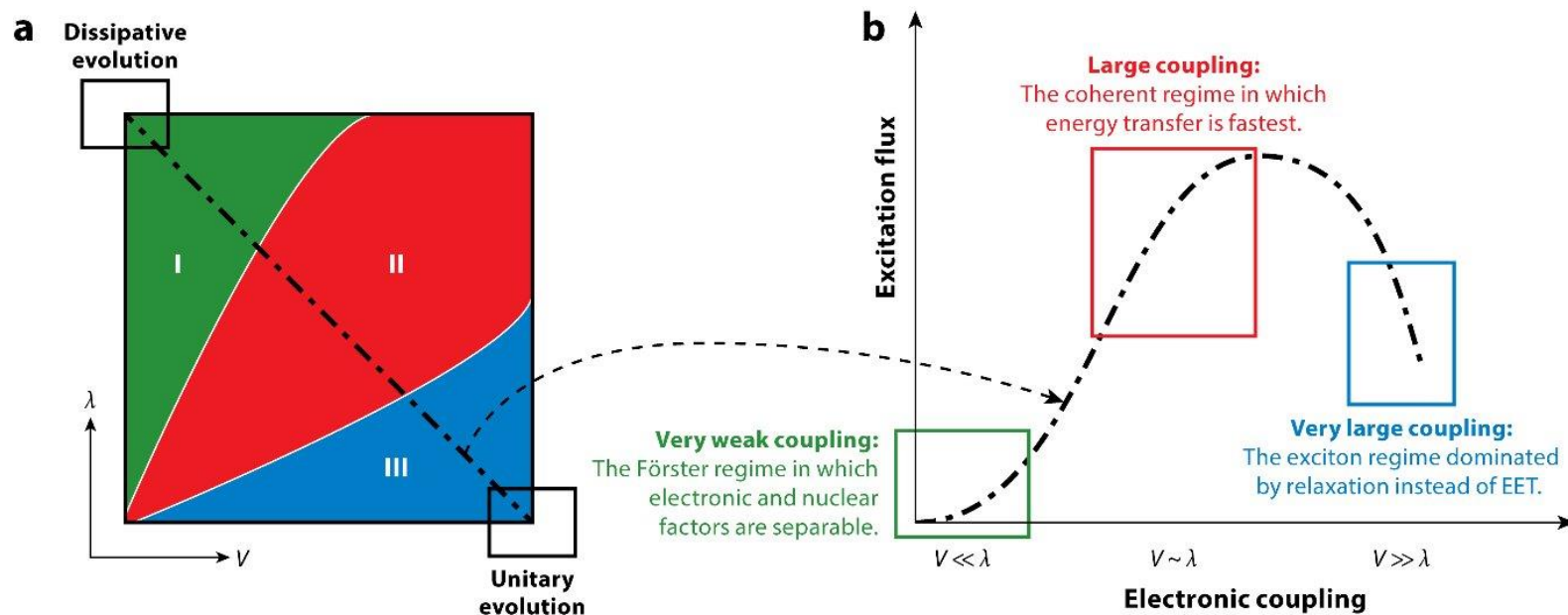
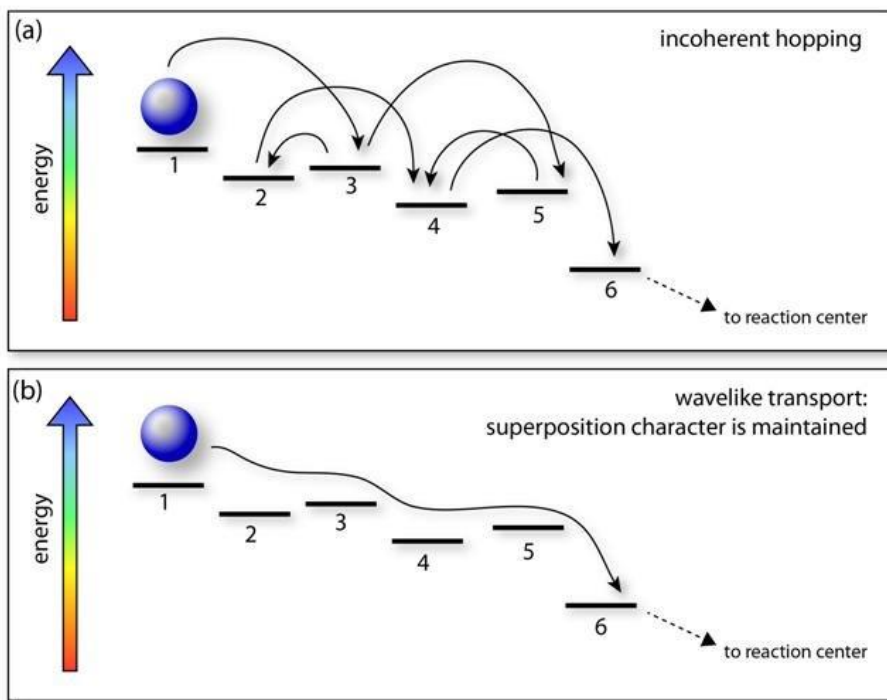
Why do we care about organic semiconductors for photonic applications?

- **photonic devices based on excitonic transfer instead of charge transfer**

Observing delocalization effects:

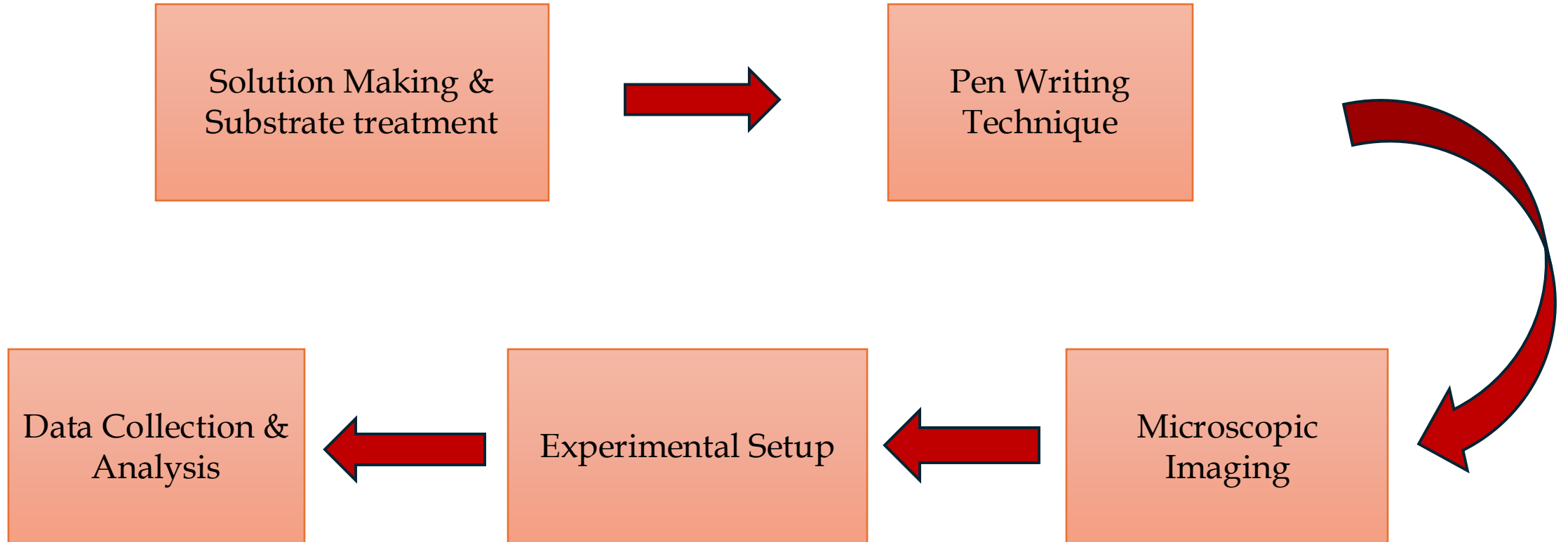
- limit static disorder

Why do we care about these materials?





Outline





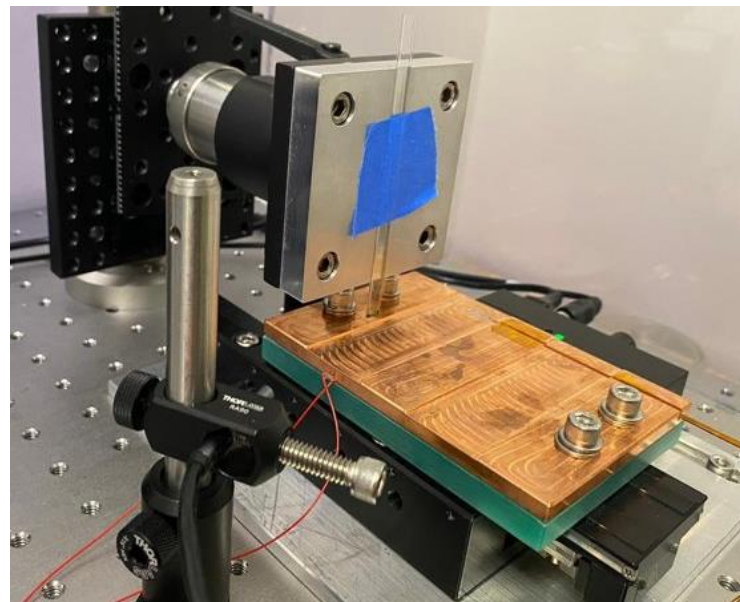
Goals



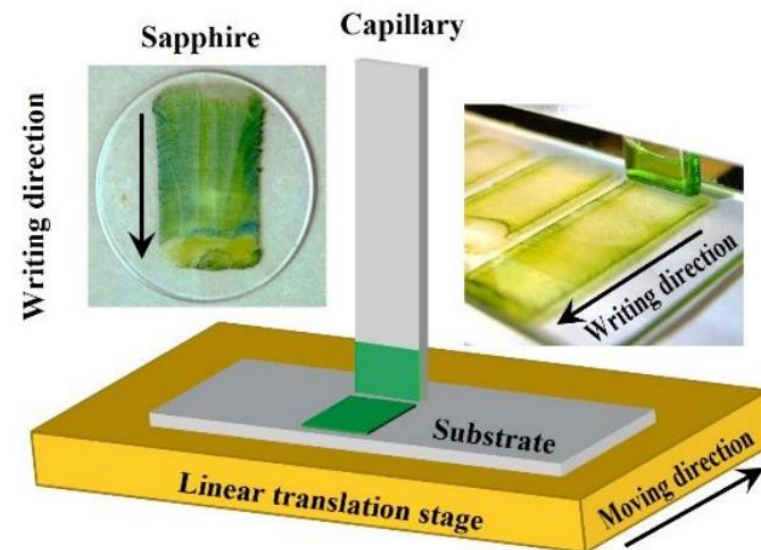
Making The Films



- I. **Concentration:** 0.1%-0.5%
- II. **Substrate Temperature:** 25°C to 60°C
- III. **Pen-Writing Speeds:** 14 $\mu\text{m/s}$ to 20 $\mu\text{m/s}$



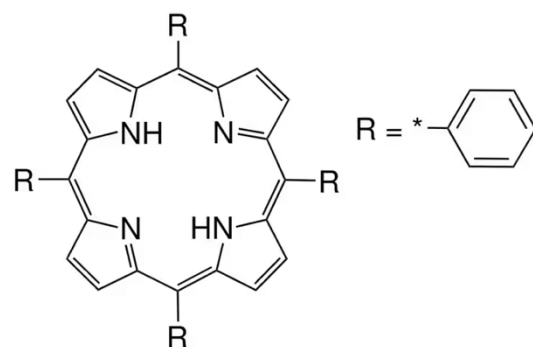
Pen Writing Stage



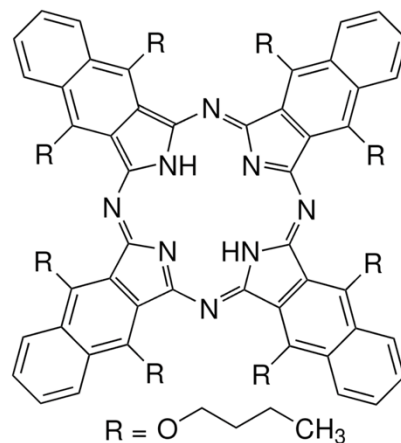
Thin Film Making

* Wo, S., R.L. Headrick, Journal of Applied Physics 2012, 111(7): p. 073716.

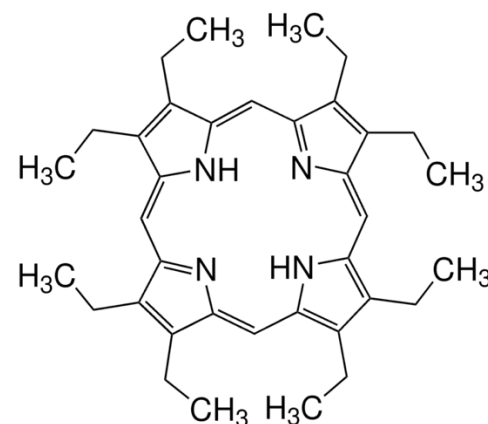
The Molecules



5,10,15,20-Tetraphenyl-21H,23H-porphine

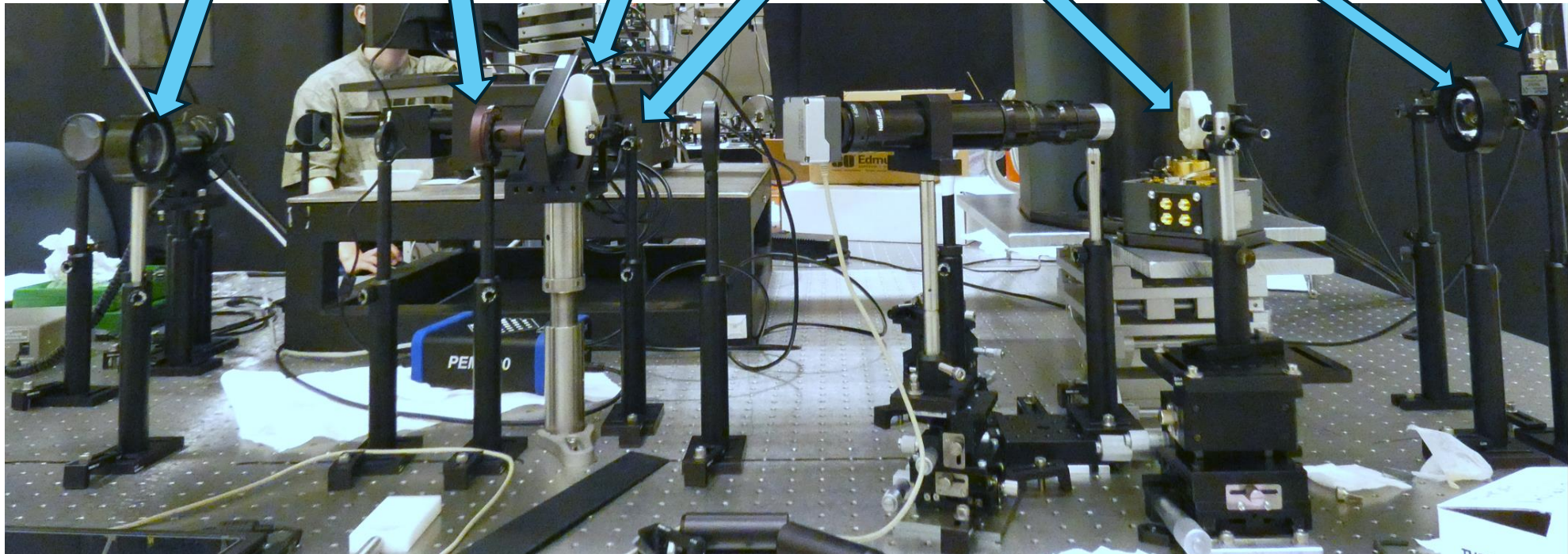
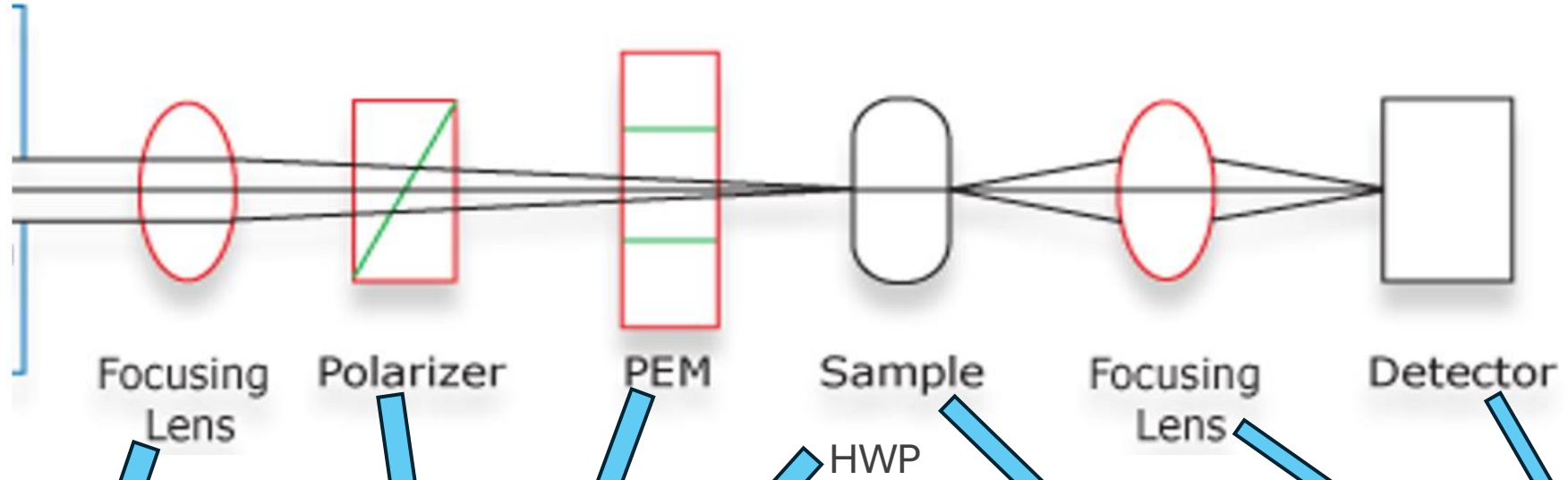


5,9,14,18,23,27,32,36-Octabutoxy-2,3-naphthalocyanine



2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphine

Experimental Setup



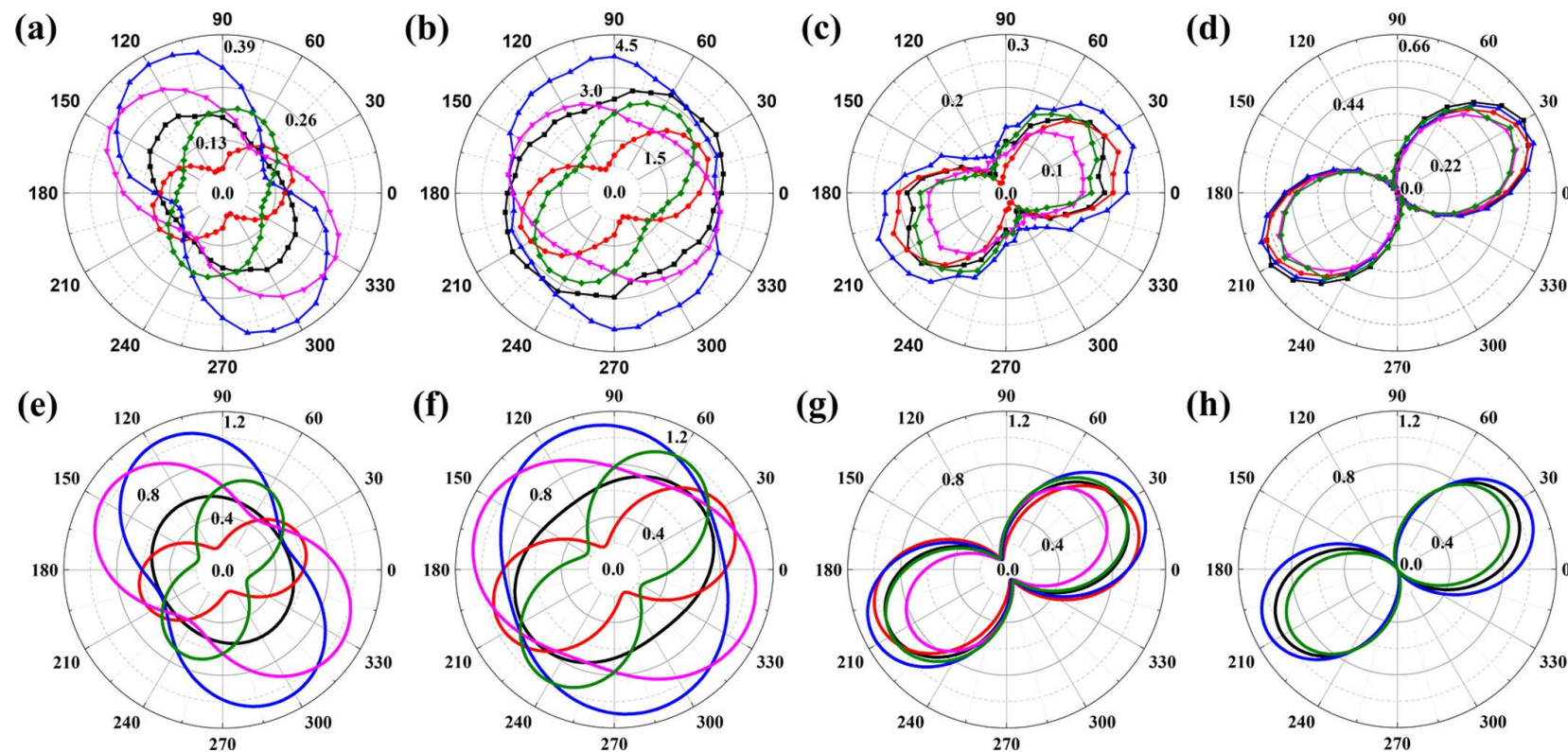
Studying the excitonic states

- Linear Dichroism (LD): The effect of causing different polarizations to be absorbed by different amounts.

$$LD = A_x - A_y$$

OR

$$LD = A_{||} - A_{\perp}$$





Acknowledgements/References



1. Dr. Madalina Furis
2. Dr. Hadi Afshari
3. Zahra Dehghani Tafti

- Wo, S., R.L. Headrick, Journal of Applied Physics 2012, 111(7): p. 073716.
- Libin Liang, KimNgan Burrill, and Madalina I. Furis *J. Phys. Chem. C* 2021, 125, 51, 27966-27974
- Chenu A, Scholes GD. 2015. Annu. Rev. Phys. Chem. 66:69-96