

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

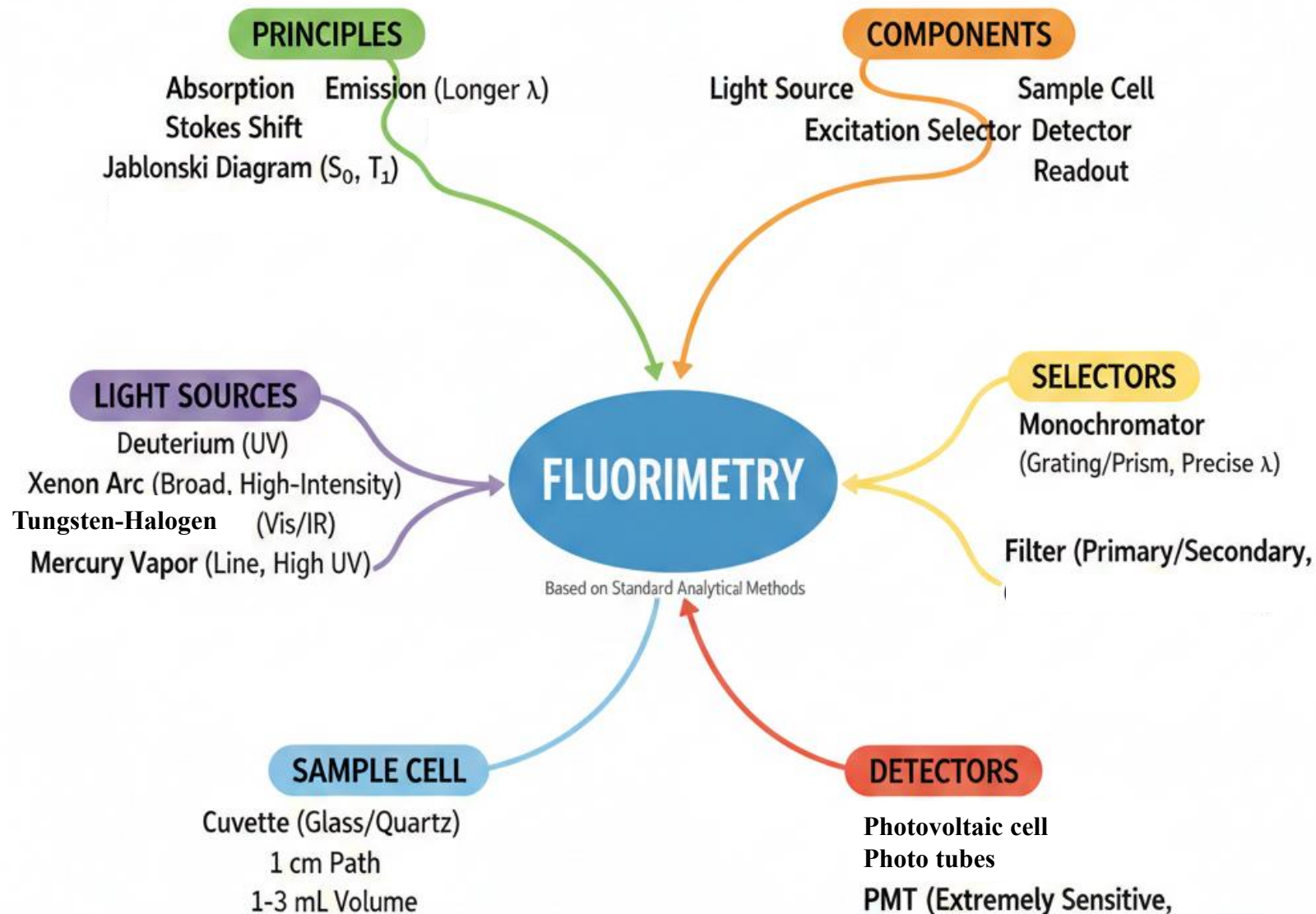
Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi.
Coimbatore -641035

COURSE NAME: INSTRUMENTAL METHODS OF ANALYSIS (BP 701 T)

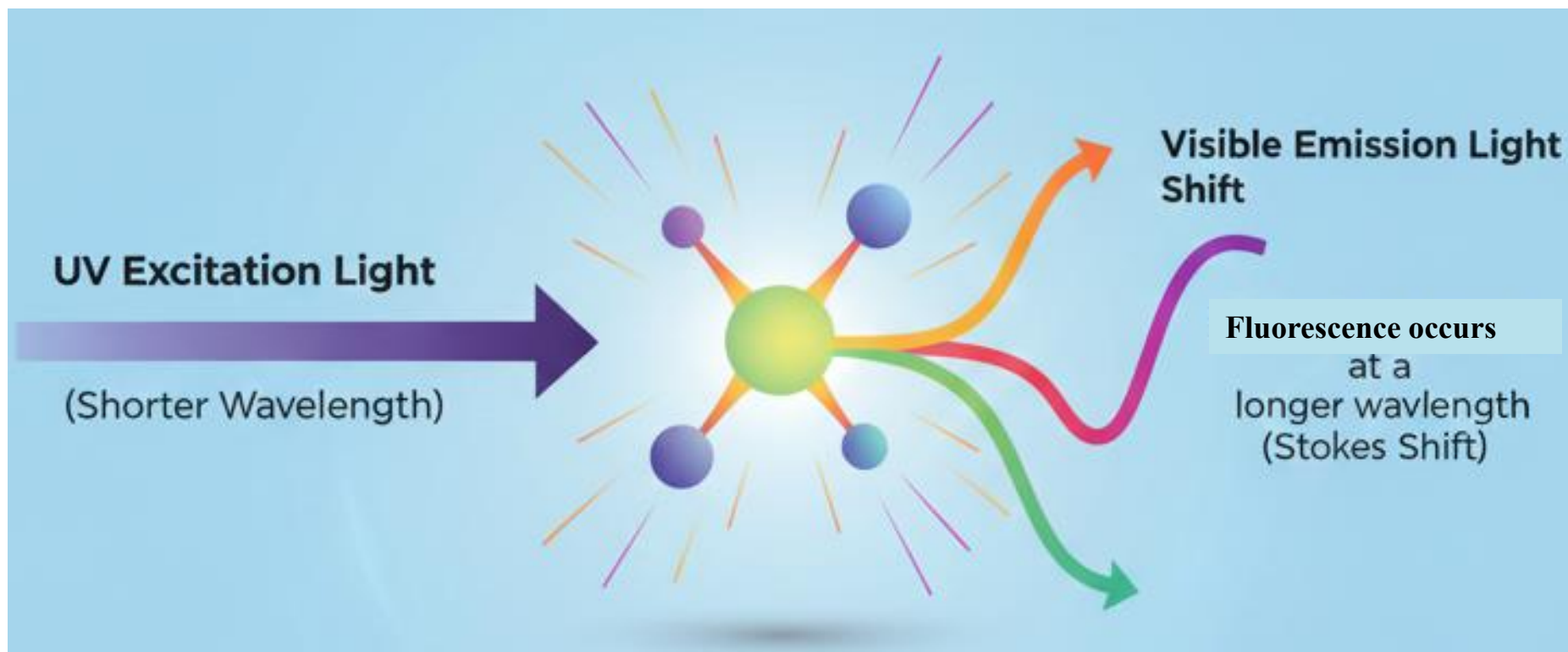
VII SEM/ IV YEAR

TOPIC 10: INSTRUMENTATION OF FLUORIMETER

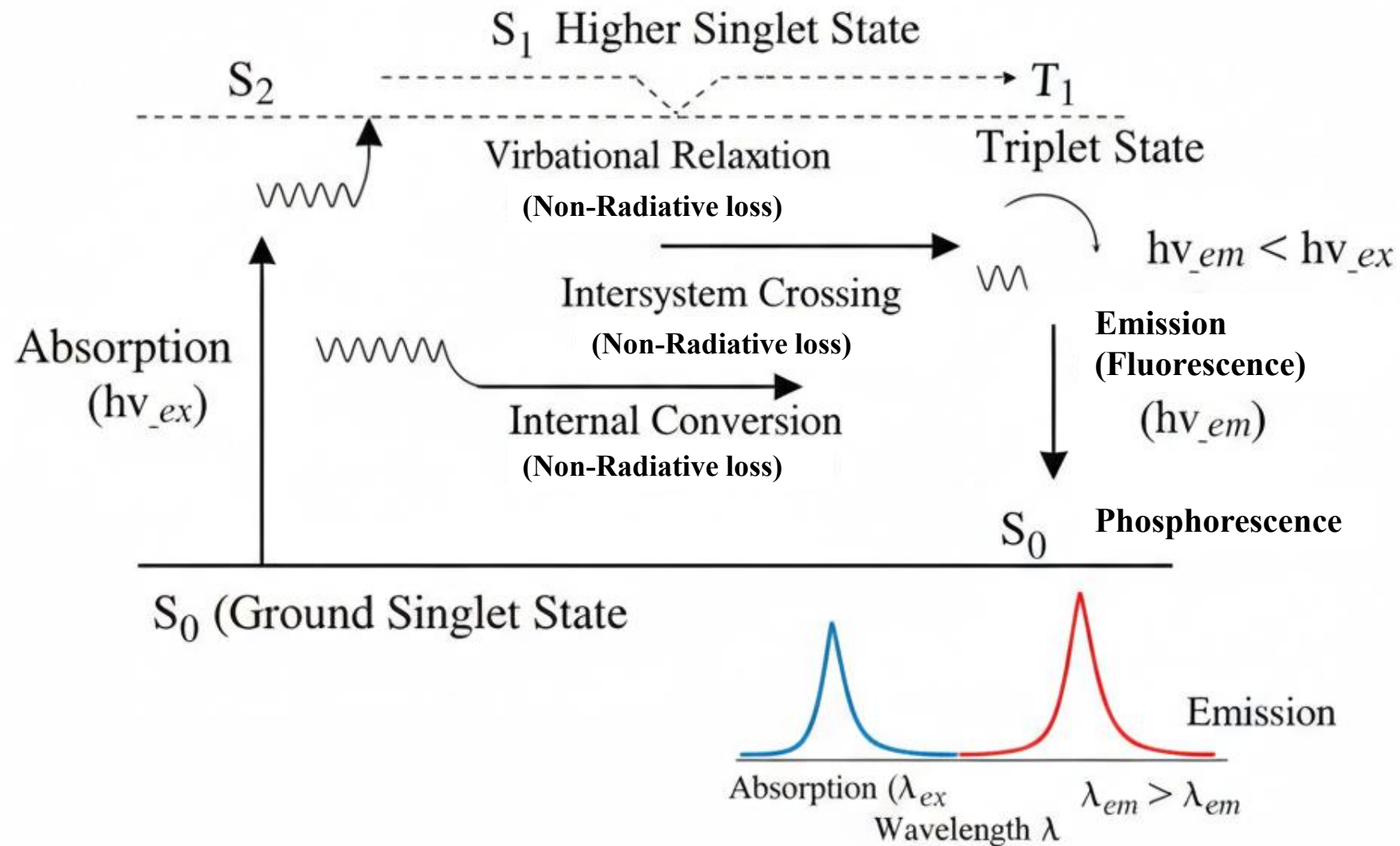
MINDMAP:



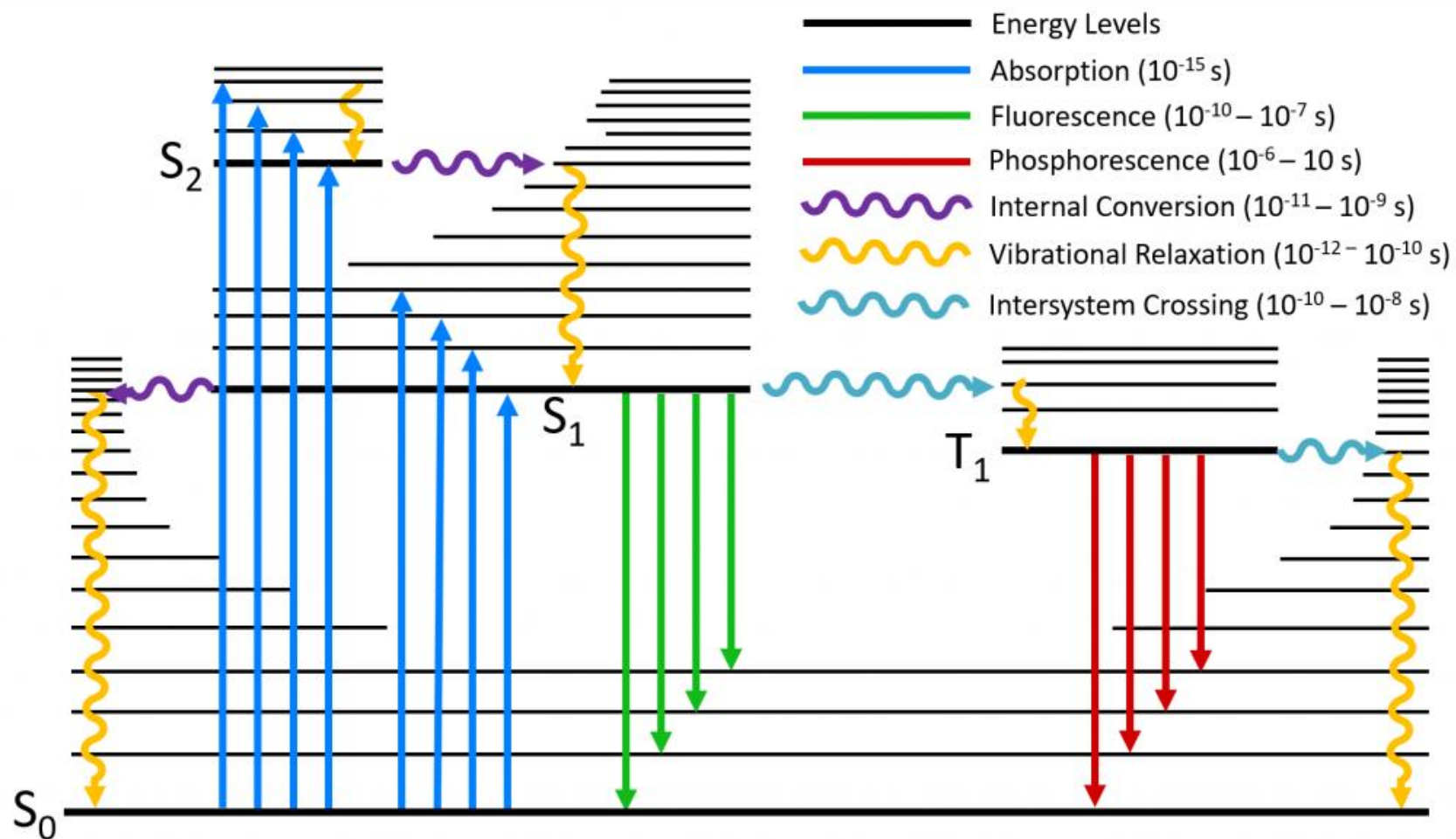
Introduction to Fluorimetry



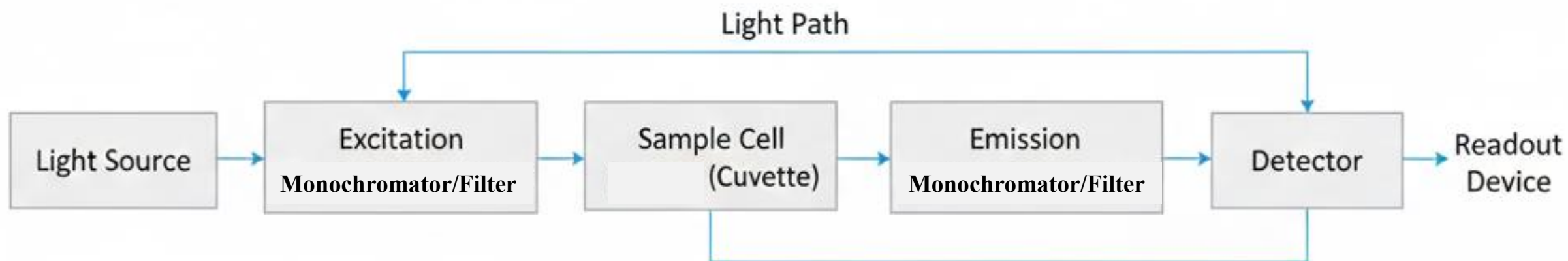
Principle of Fluorimetry



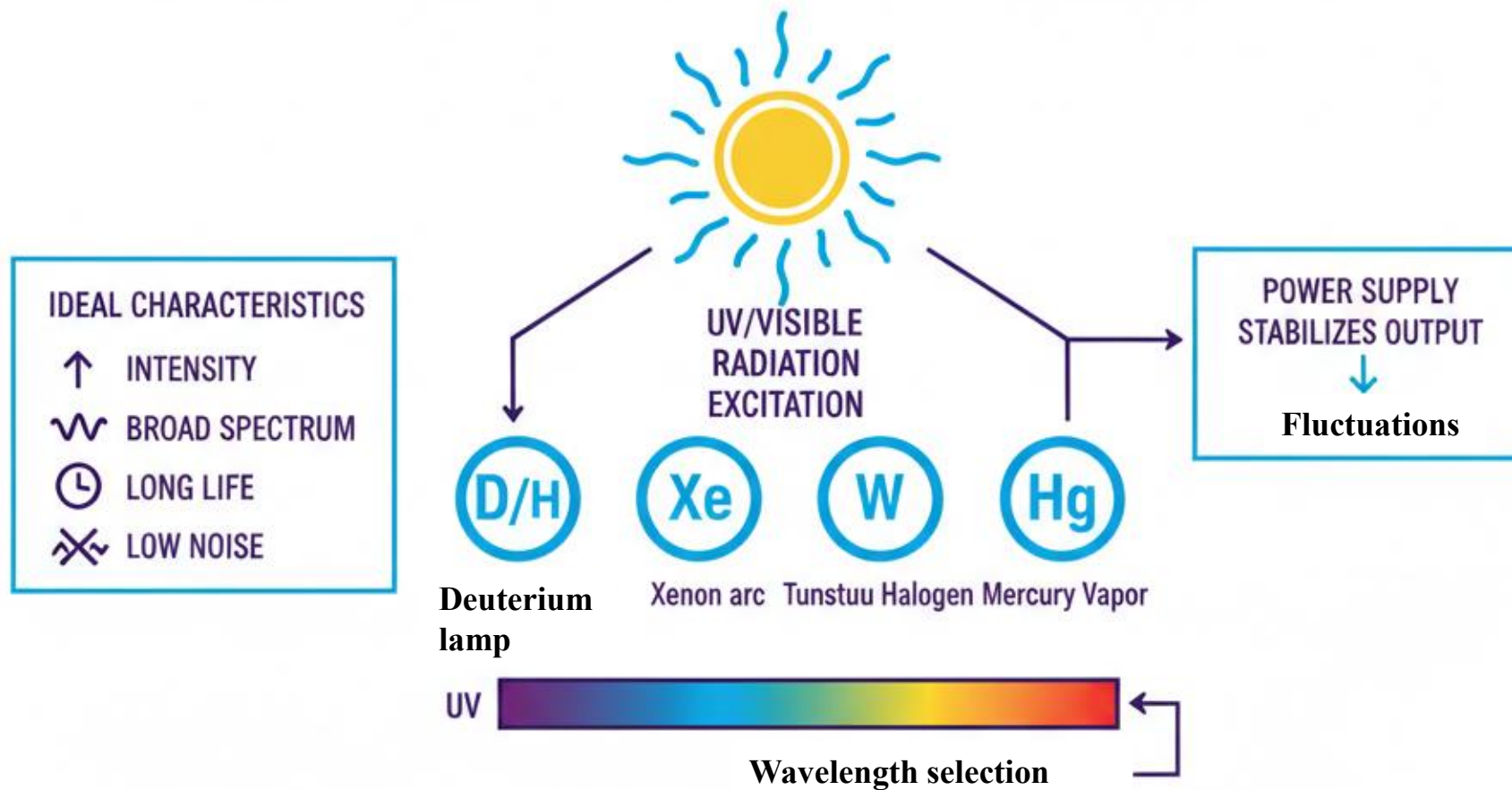
Jablonski Diagram



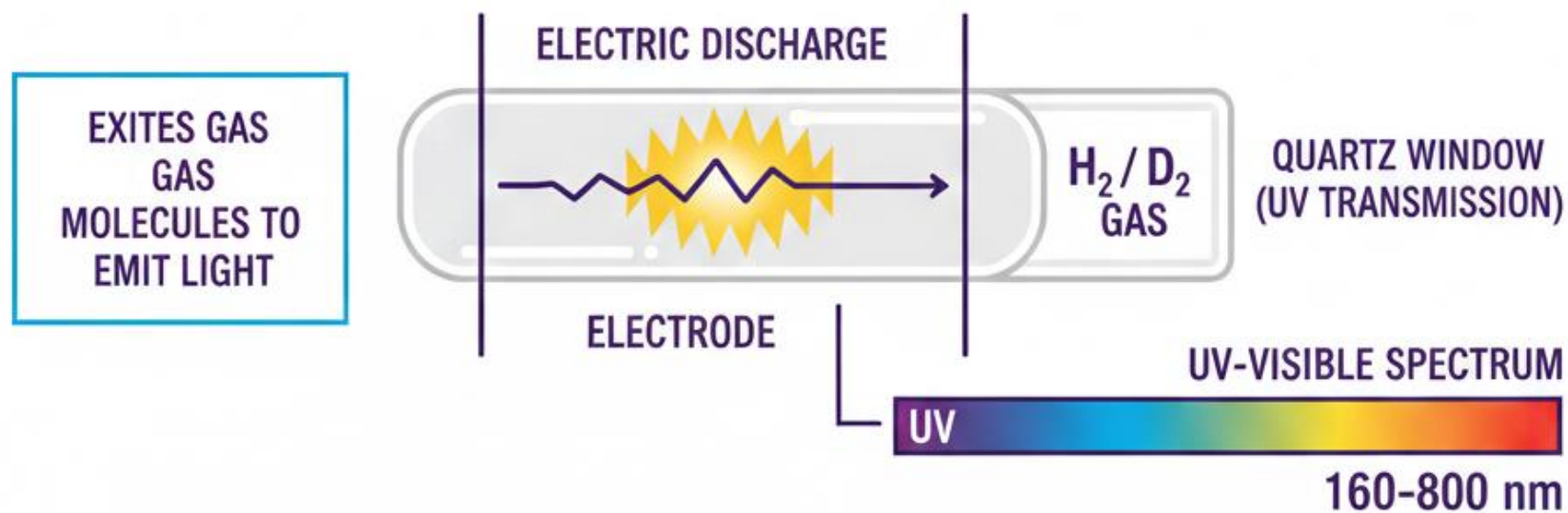
Overview of Fluorimeter Components



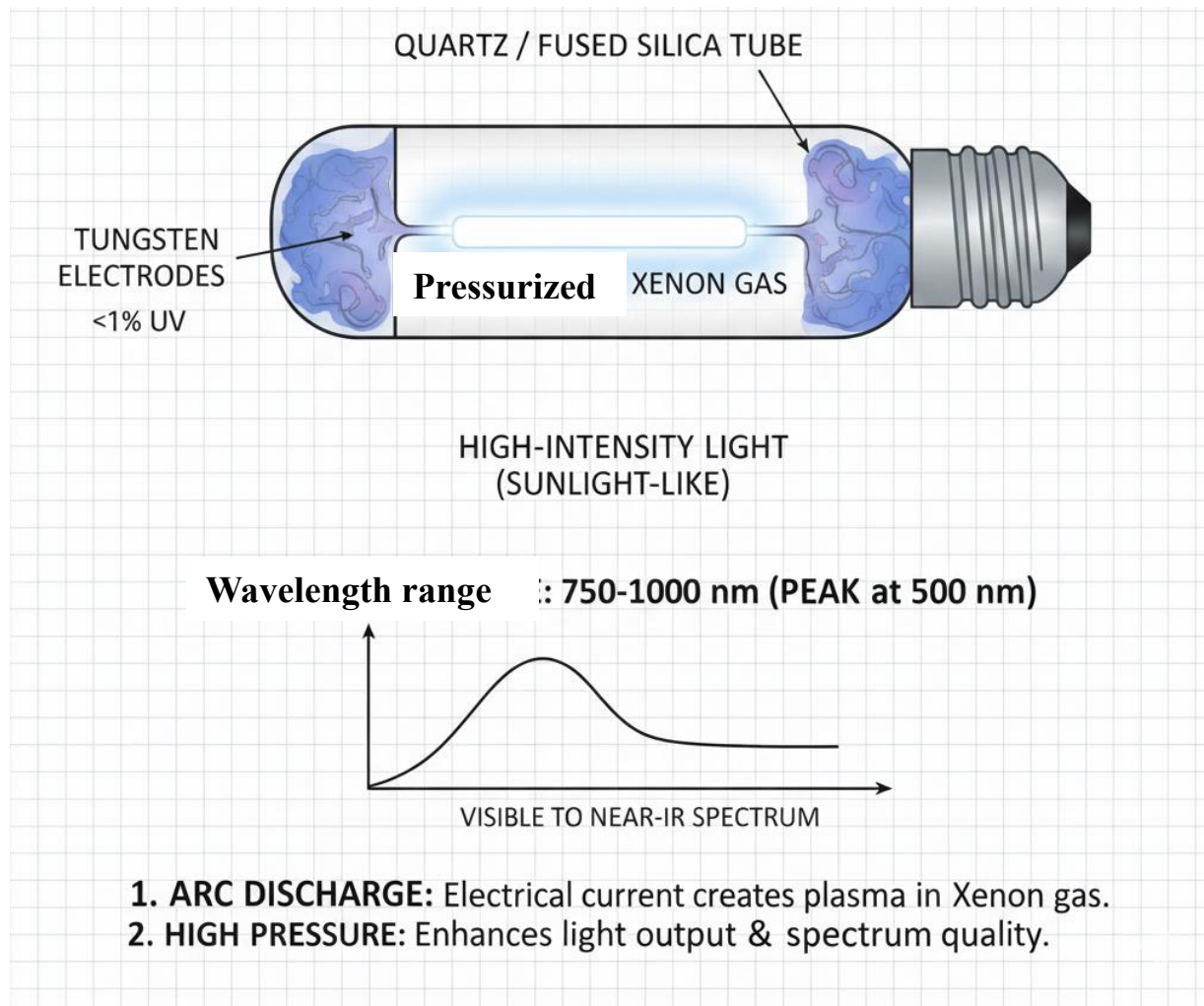
Light Sources



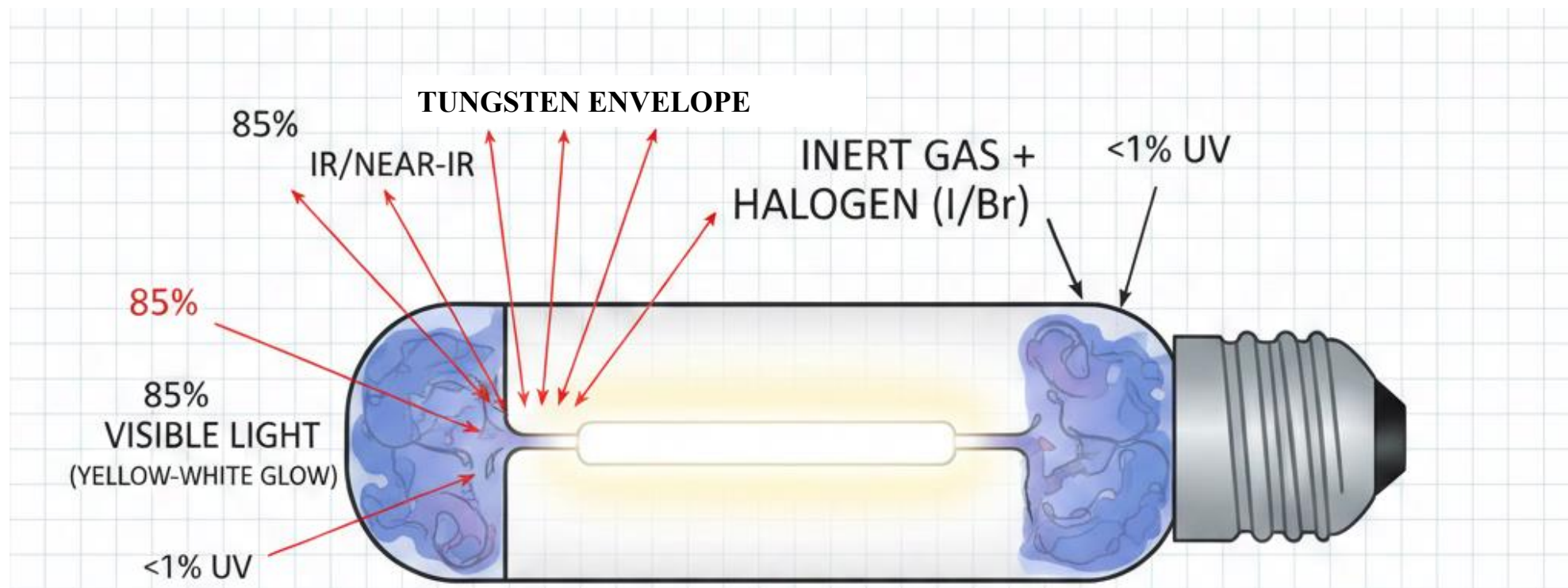
Deuterium and Hydrogen Lamps



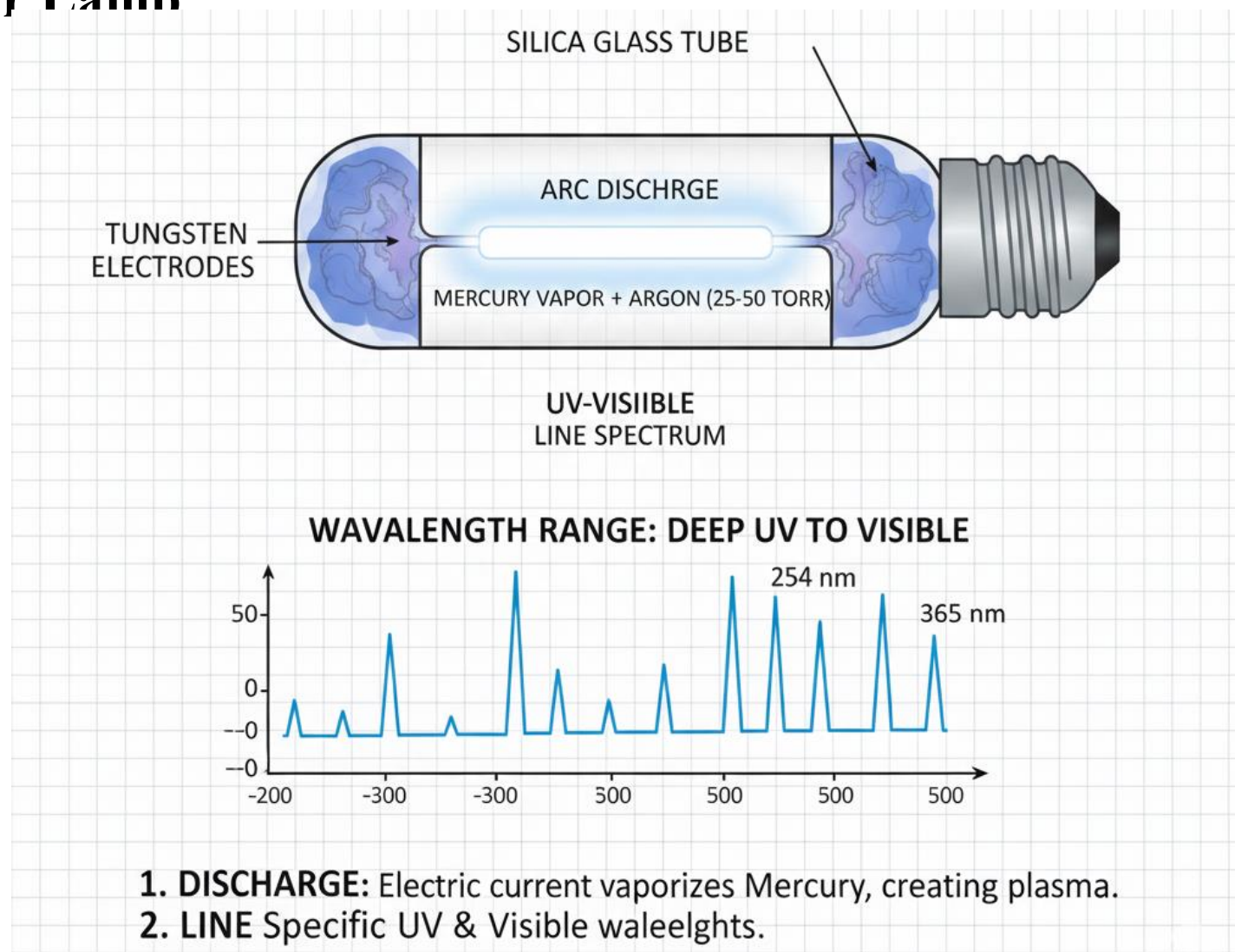
Xenon Arc Lamp



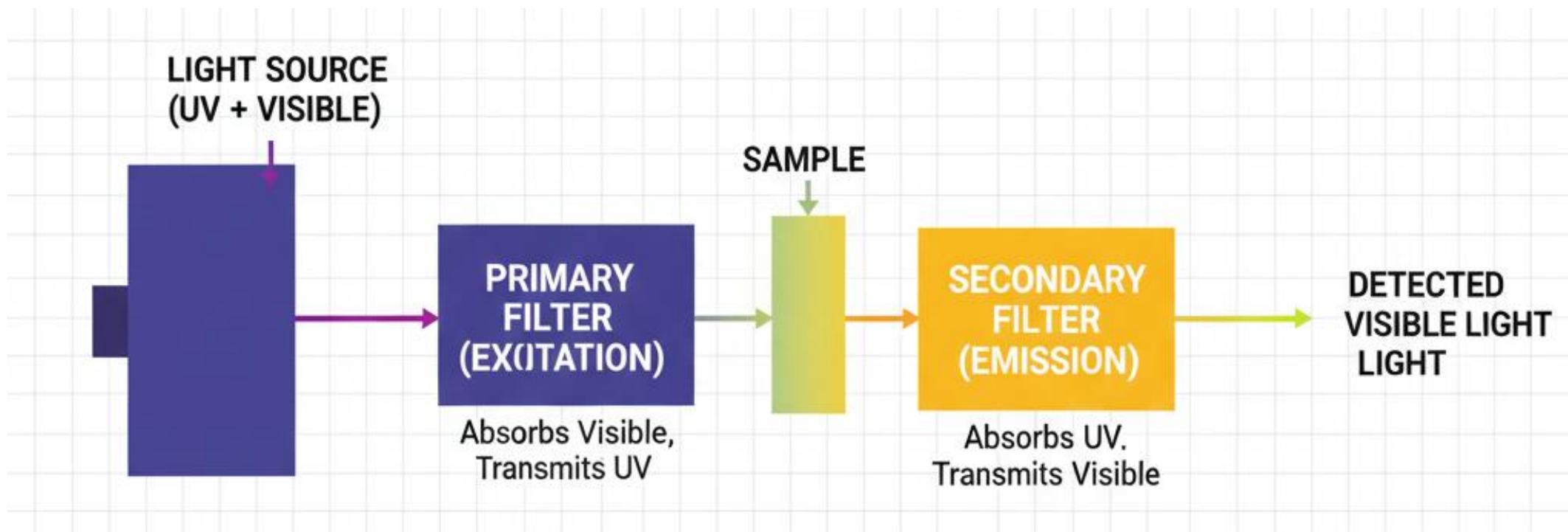
Tungsten Halogen Lamp



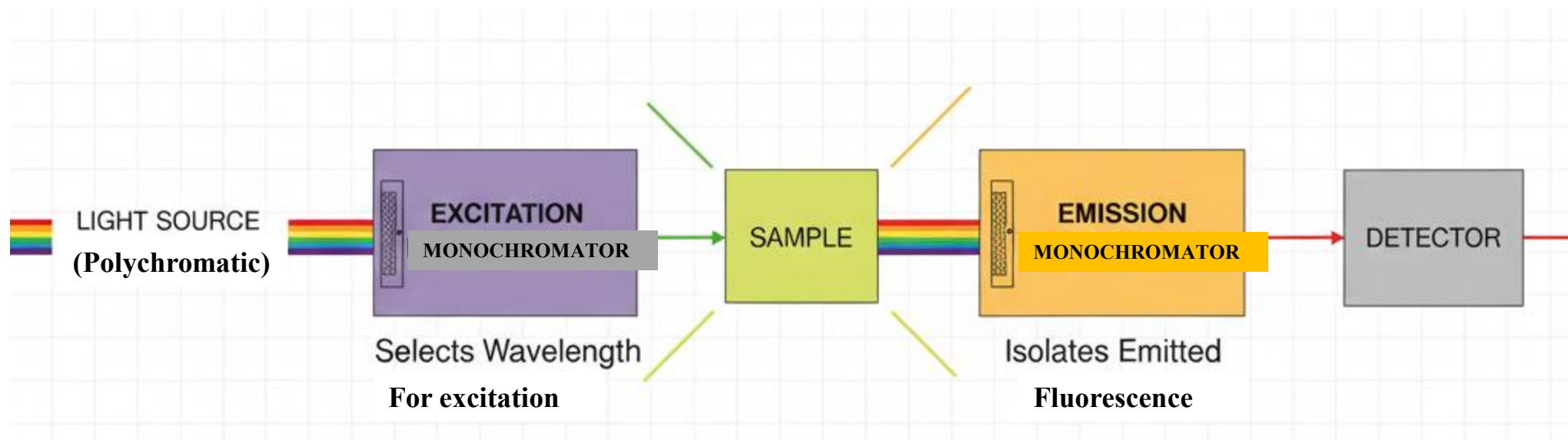
Mercury Vapor Lamp



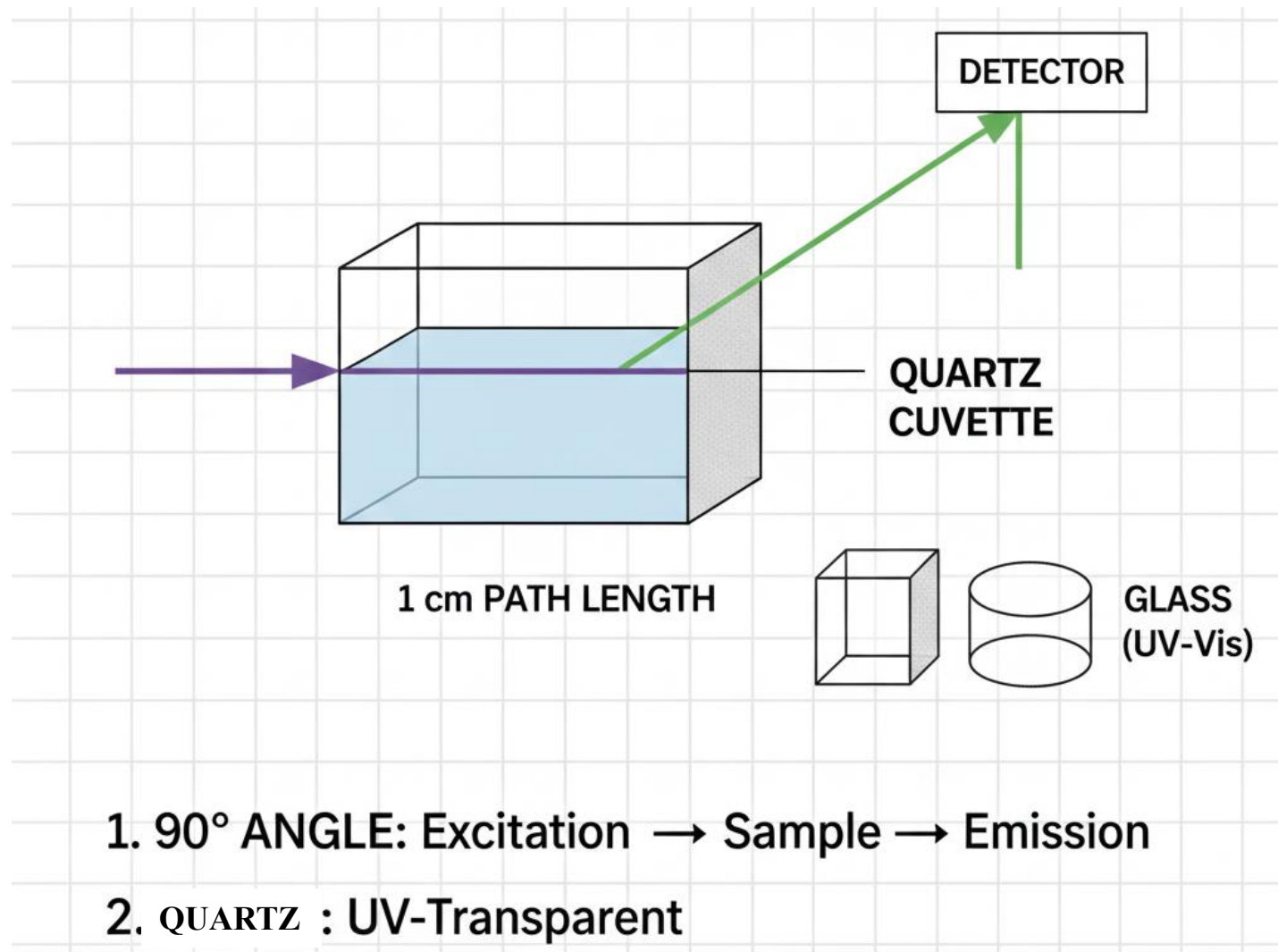
Filters:



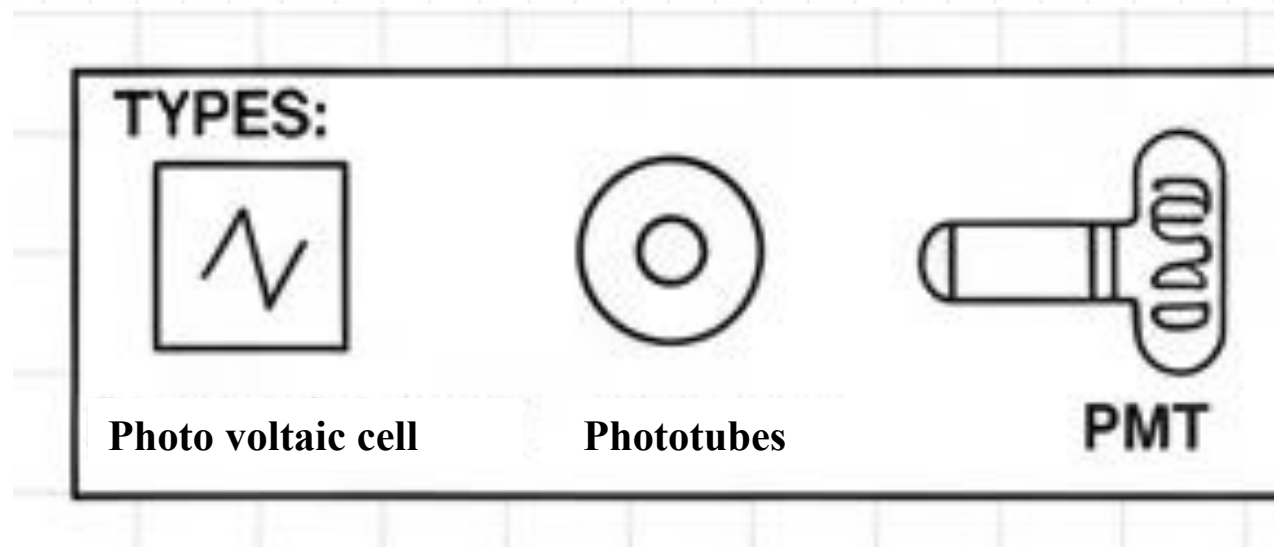
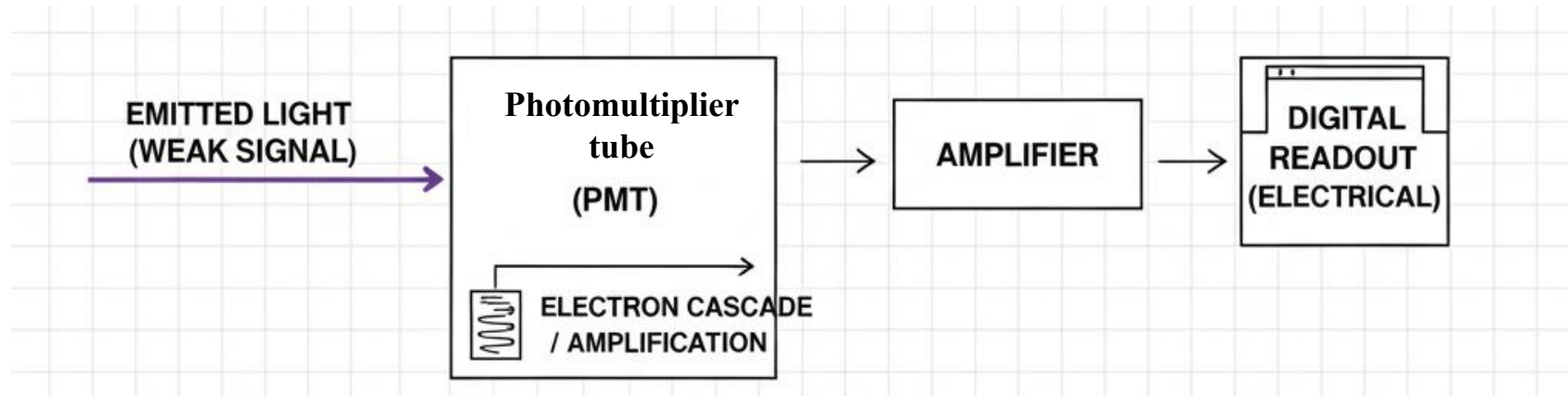
Monochromator



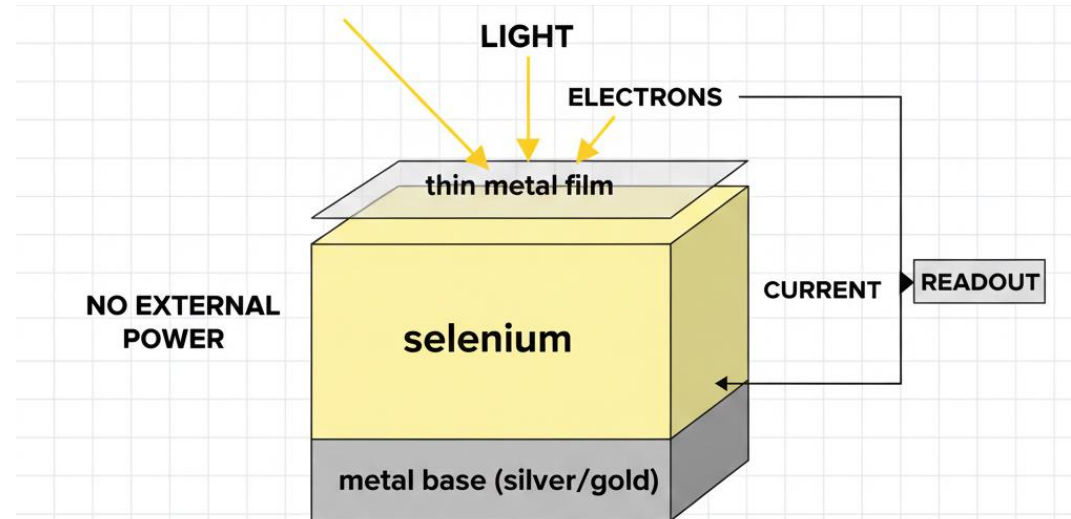
Sample Cells (Cuvettes)



Detectors

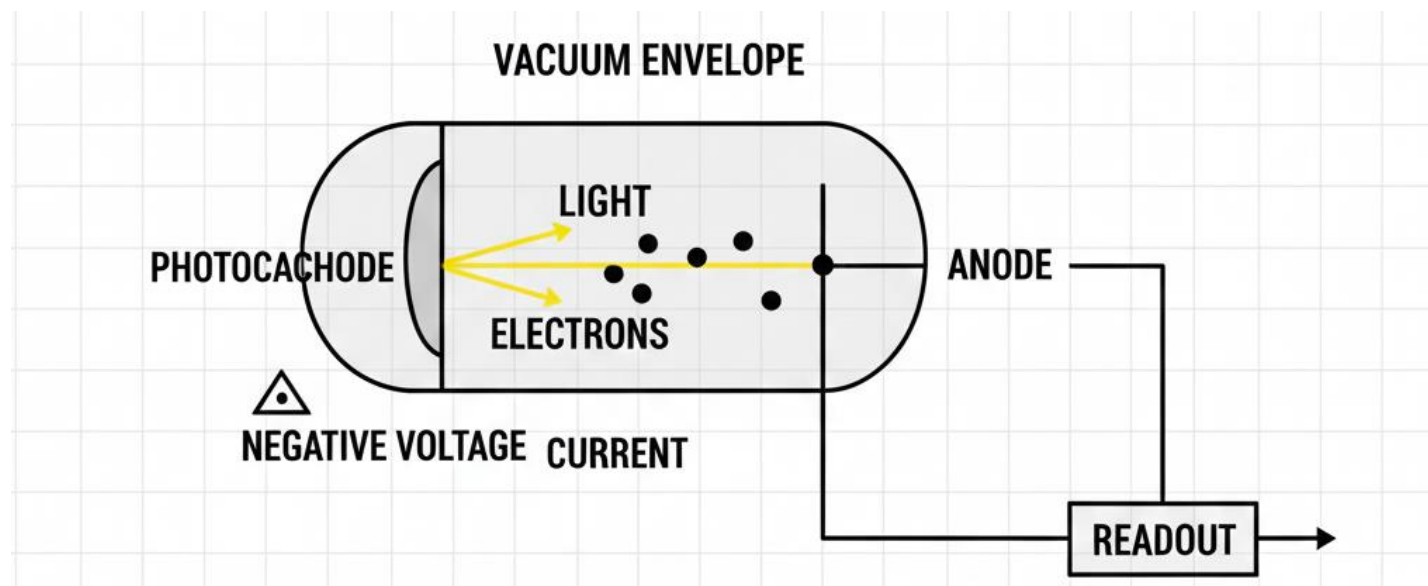


Barrier Layer Cell

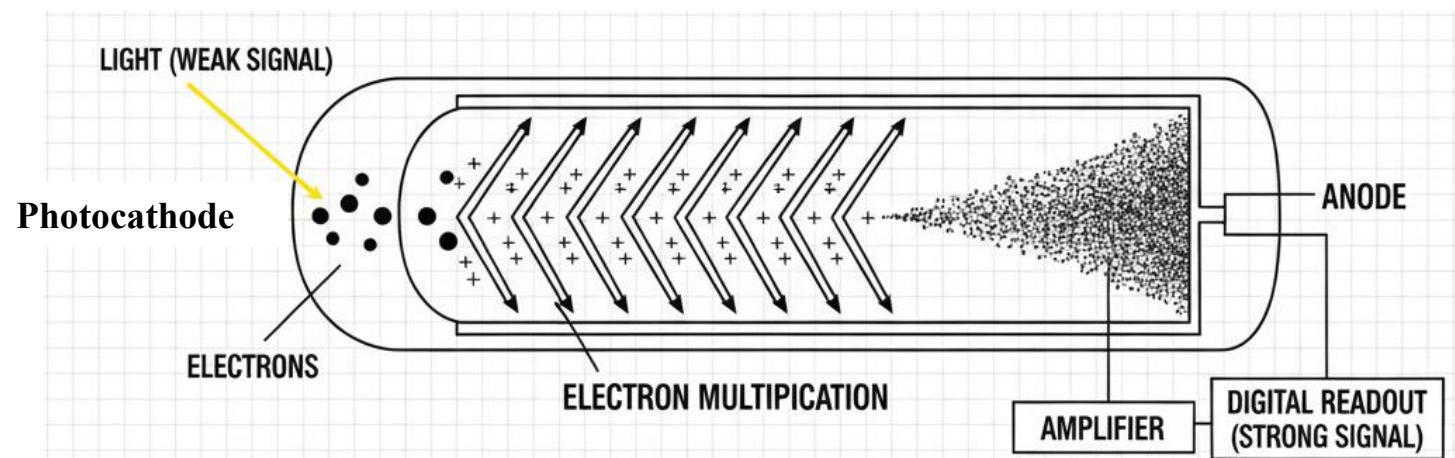


- 1. LIGHT → CURRENT**
- 2. SIMPLE, NO BATTERY**

Phototube/Photoemissive Tube

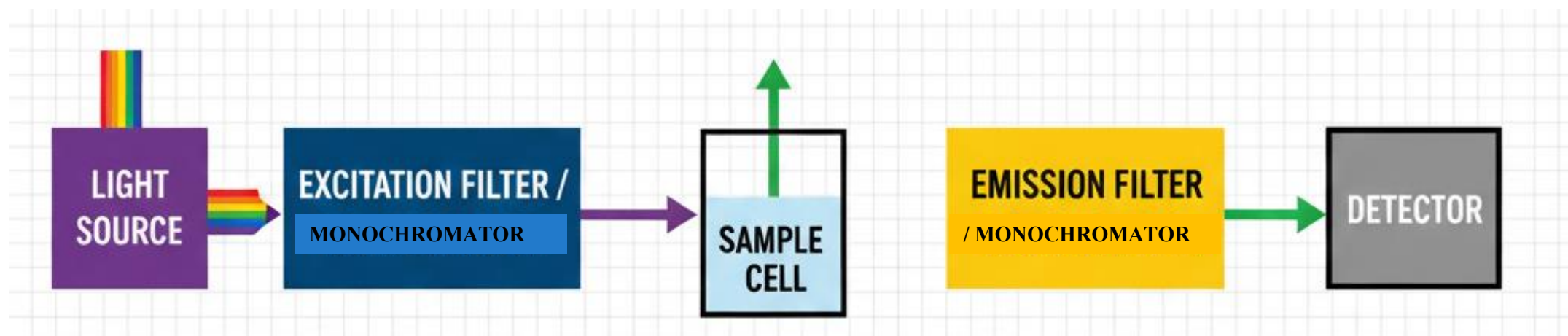


Photomultiplier Tube

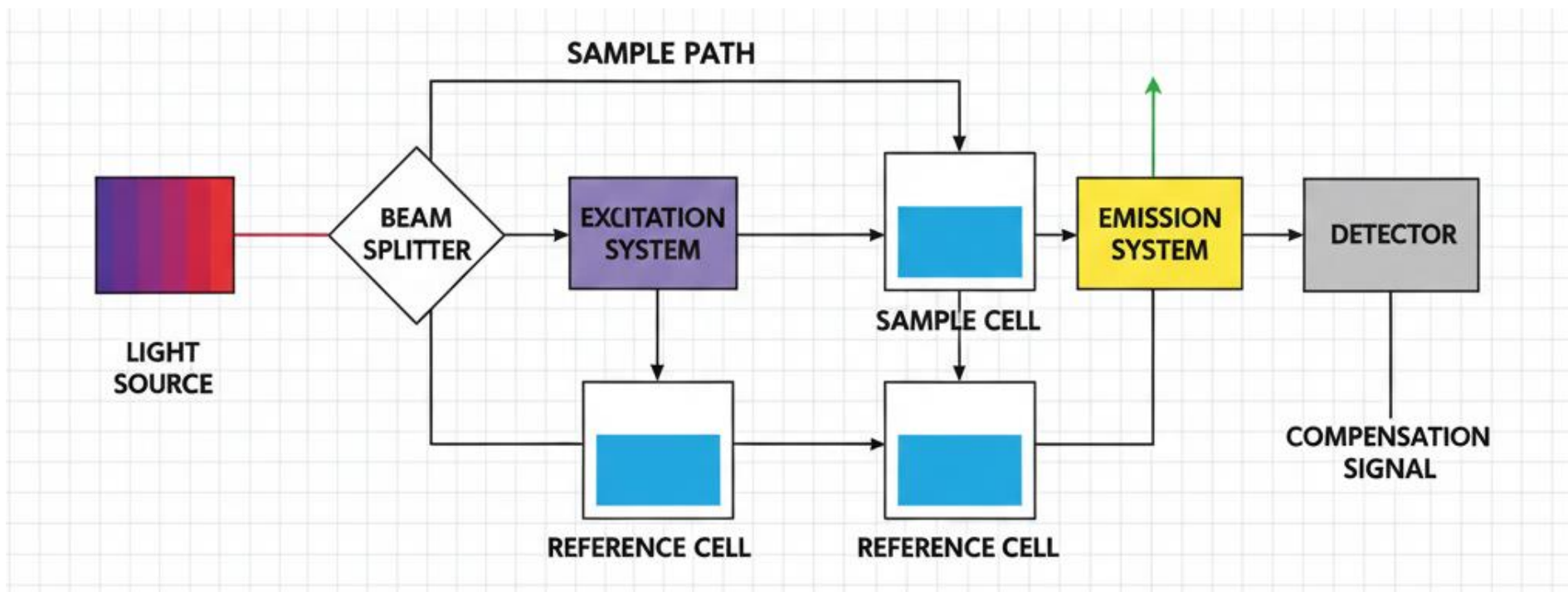


1. LIGHT → ELECTRON CASSADE → STRONG CURRENT
2. DYNODES: Amplify Weak Signals (High Sensitivity)

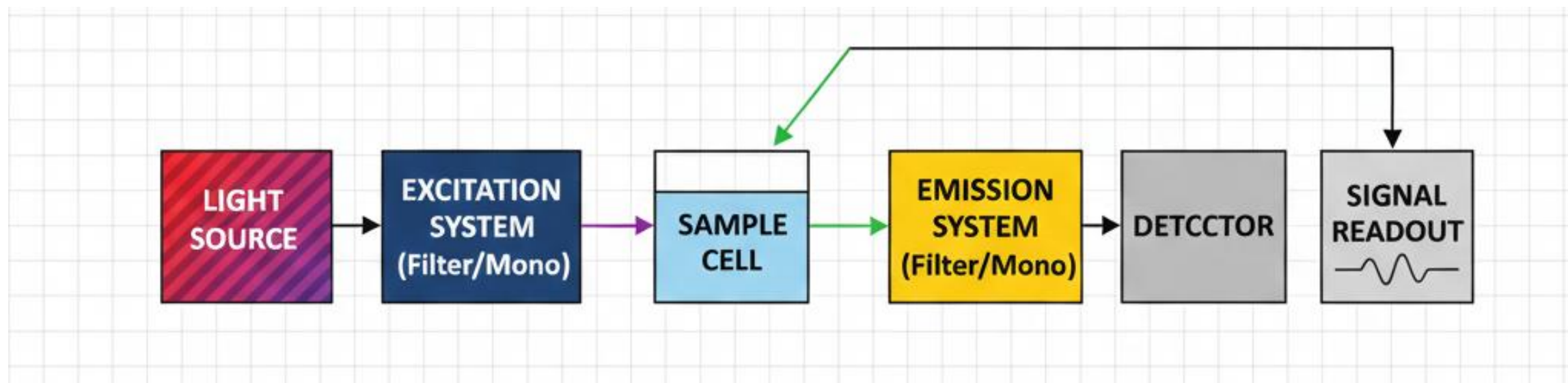
Single-Beam Fluorimeter



Double-Beam Fluorimeter



Summary



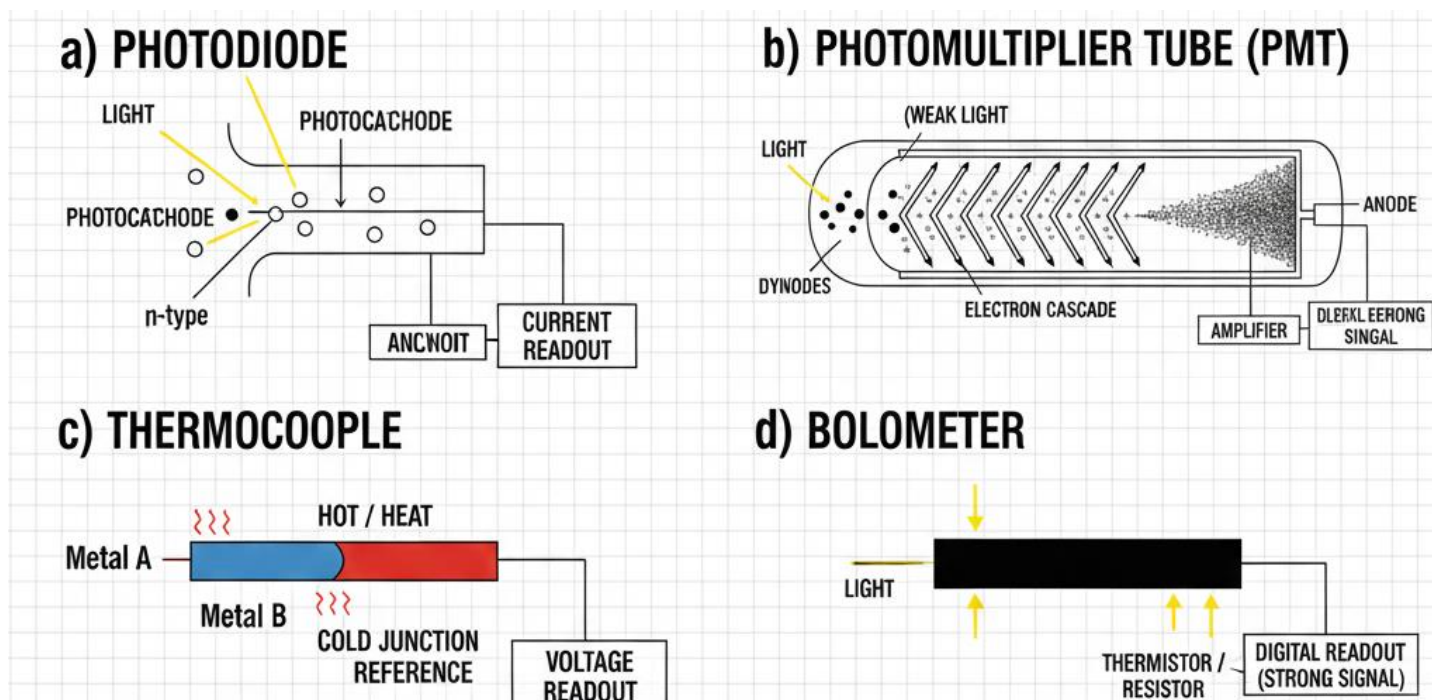
Assessment

1. Which detector is commonly used in fluorimeters due to high sensitivity?



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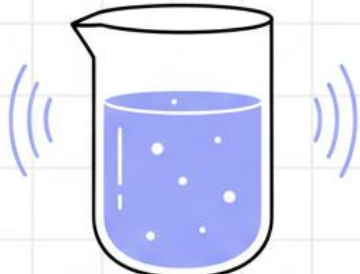
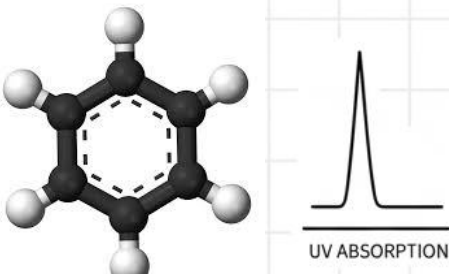
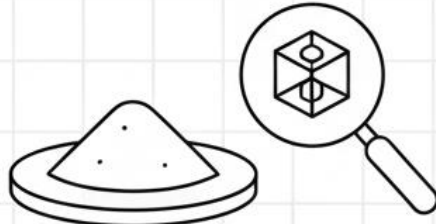
Assessment

2. Which compound is commonly used as a fluorescence standard for instrument calibration?



Assessment

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a) POTASSIUM DICHROMATE	b) QUININE SULFATE
	
c) BENZENE 	d) SODIUM CHLORIDE 

Assessment

3. Which of the following solvents is preferred for fluorescence measurements due to low background fluorescence?



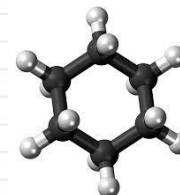
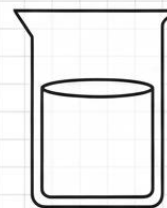
Assessment

3. Which of the following solvents is preferred for fluorescence measurements due to low background fluorescence?

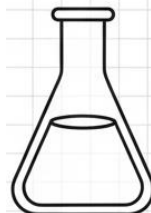
a) ETHANOL



b) CYCLOHEXANE



c) ACETONE



References

1. Lakowicz JR. Principles of fluorescence spectroscopy. 3rd ed. New York (NY): Springer; 2006.
2. Skoog DA, Holler FJ, Crouch SR. Principles of instrumental analysis. 7th ed. Boston (MA): Cengage Learning; 2018.
3. Guilbault GG, editor. Practical fluorescence. 2nd ed. New York (NY): Marcel Dekker; 1990.
4. Valeur B, Berberan-Santos MN. Molecular fluorescence: principles and applications. 2nd ed. Weinheim (Germany): Wiley-VCH; 2012.

Thank
you!