

INDEPENDENT RESEARCH/PROJECT PROPOSAL

g – C₃N₄ modulated CaWO₄ for enhanced performance of photoelectrochemical (PEC) Water Splitting

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Introduction

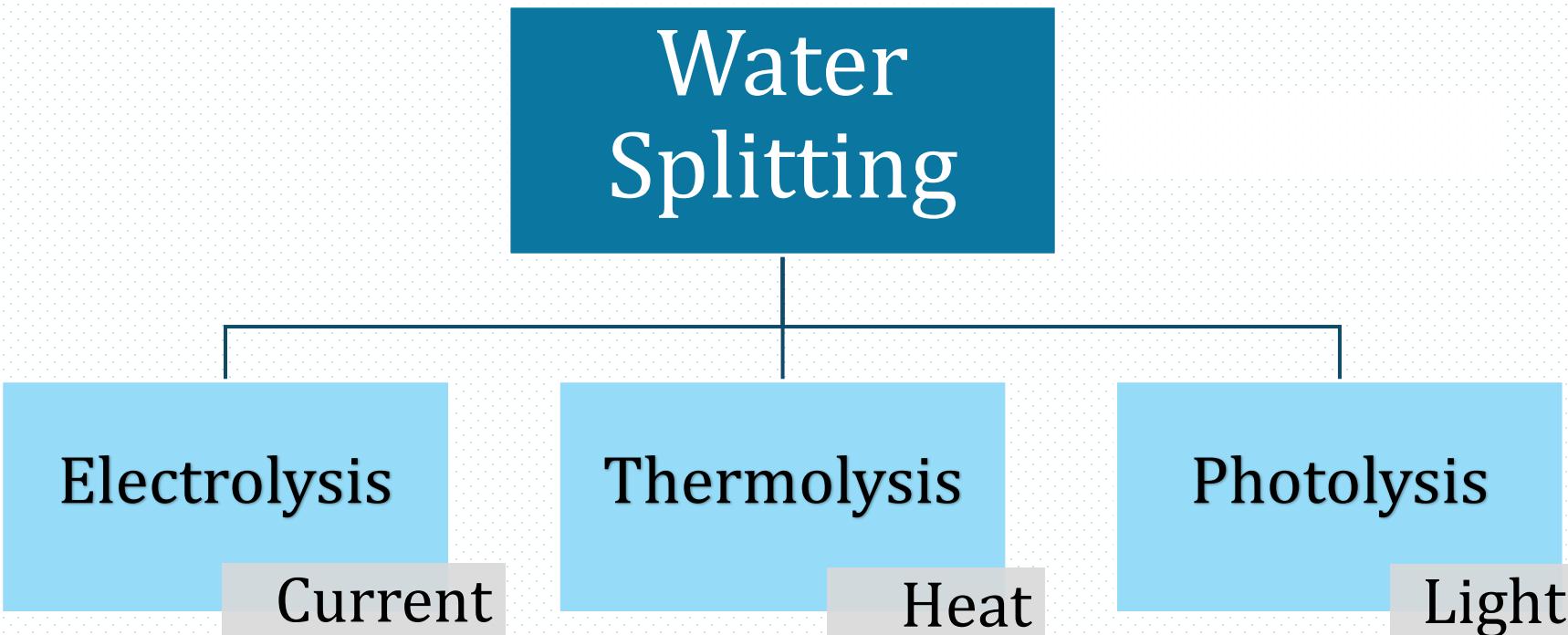
Water Splitting

Process of breaking down water molecules (H_2O) into their constituent elements: Hydrogen (H_2) and Oxygen (O_2)



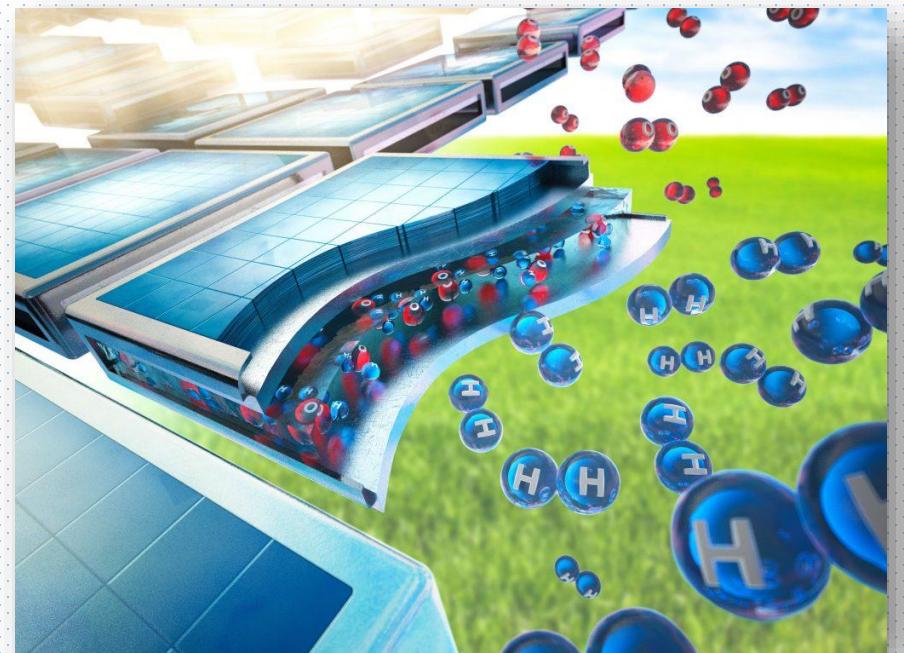
Introduction Cont..

Water Splitting Methods



Objective

Investigate the enhancement of photoelectrochemical water splitting for g-C₃N₄ modulated CaWO₄.



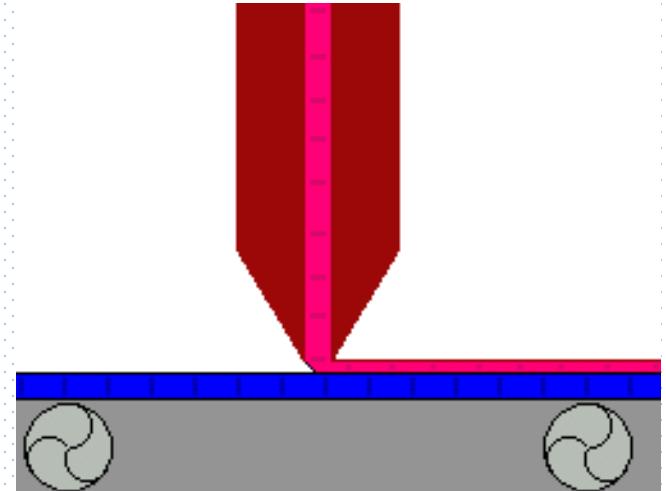
Methodology

- Preparation of CaWO_4 Powder

- React aqueous solutions (0.1M each) of Calcium nitrate tetrahydrate $[\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}]$ and Sodium tungstate $[\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}]$ at room temperature with stirring.
- Centrifuge, Filter and Wash the precipitate several times with distilled water.
- Dry at 80°C in an oven approximately 20 hours.
- Sinter the CaWO_4 precipitate in a furnace at a high temperature (350°C) for 3 hours.

Methodology

- Coat the CaWO₄ Powder
 - Doctor Blade Method
- Characterization and performance evaluation
- Data analysis and comparison



Timeline

Activity	April		May				June			
	3	4	1	2	3	4	1	2	3	4
Literature Review										
Preparation of CaWO ₄ Powder										
Coat the CaWO ₄ Powder										
Data analysis and comparison										
Preparation for presentation										

References

- [01] N. A. Sabu, K.P. Priyanka, S. Ganesh, and T. Varghese, “Modifications in the structural and optical properties of nanocrystalline CaWO₄ induced by 8MeV electron beam irradiation,” *Radiation Physics and Chemistry*, vol. 123, pp. 1–5, Feb. 2016, doi: <https://doi.org/10.1016/j.radphyschem.2016.02.006>.
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Thank You!