



Society of Mechanical Engineers

**Guest Lecture on
CLEAN HYDROGEN PRODUCTION AND
FUEL CELL TECHNOLOGIES**

By

DR.T. MAIYALAGAN

Research Associate Professor

SRM University

❖ **October 12, 2023 – Bio Tec Seminar Hall**



Illuminating the Future: Clean Hydrogen and Fuel Cell Technologies

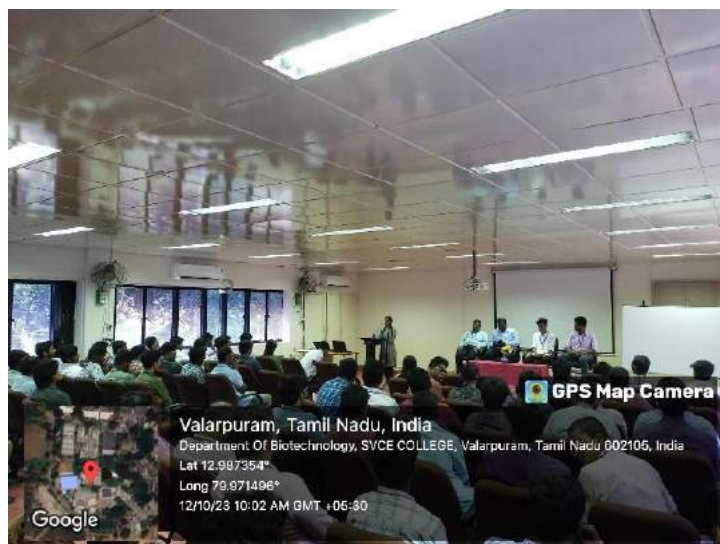
○ Introduction:

- ❖ October 12, 2023, the hallowed halls of Sri Venkateswara College of Engineering echoed with the cutting-edge insights of Dr . T. Maiyalagan, a luminary in the field, as he unravelled the mysteries of "Clean Hydrogen Production and Fuel Cell Technologies." Organized by The Society of Mechanical Engineers (SME), this guest lecture set the stage for a transformative discourse on the future of energy.



○ Commencement with Warmth:

- ❖ Inaugurating the event, SME member Mr. J. Sai Santhosh extended a warm welcome, creating an atmosphere of anticipation among the esteemed chief guest, faculty members, and the enthusiastic final-year Mechanical department students. Ms. Chealoka, with eloquence, introduced the distinguished Chief Guest, Dr. T. Maiyalagan, who took charge, seamlessly transitioning the gathering into a realm of knowledge.



○ The Essence of Energy:

- ❖ Dr. T. Maiyalagan passionately delved into the pivotal role of energy, aptly calling it the "lifeblood of society." Amidst the canvas of global energy dynamics, he painted a stark reality—our overreliance on fossil fuels, a dependency responsible for up to 90% of CO₂ emissions, global warming, and climate change. The urgency for transformative action, he asserted, lies in embracing alternative energy sources.



○ Hydrogen's Radiance:

- ❖ A beacon of hope emerged in the form of hydrogen, lauded by Dr. T. Maiyalagan as a threefold more potent energy carrier than kerosene. Notably, it shines as a clean fuel, producing only heat and electricity, leaving behind water vapor as a benign byproduct. Dr. T. Maiyalagan advocated for a hydrogen-centric future, envisioning rich production and storage employing Liquid Organic Hydrogen Carriers (LOHCs) without compromising energy efficiency.



○ Fuelling Tomorrow: Fuel Cell Technologies:

- ❖ The lecture transitioned seamlessly into the realm of fuel cell technologies, where Dr. T. Maiyalagan unveiled a roster of efficient electricity producers. From Proton Exchange Membrane fuel cells to Solid Oxide fuel cells, each holds the promise of a cleaner, more sustainable energy future.

○ Acknowledging Challenges:

- ❖ However, the road to this utopian energy landscape is not devoid of challenges. Dr. T. Maiyalagan candidly addressed the demerits of commercialization—from high initial production costs to operational challenges like fuel cell buses, system longevity, and the recharging costs of hydrogen gas.



Conclusion: Charting the Course Ahead:

- ❖ As the lecture concluded, the audience left with minds ablaze with possibilities. Dr. T. Maiyalagan's discourse wasn't just about energy; it was a call to action, an invitation to redefine our energy narrative. The seeds of a sustainable future were sown, and the Society of Mechanical Engineers had set the wheels in motion for a future where clean energy reigns supreme.



