



## PHOTONICS STUDENT CHAPTER IIT BOMBAY

# L.I.T Talks (Light for Innovative Technology)

### LPCVD Techniques in Micro-fabrication: A Comprehensive Lecture Series



**Wayne H. Choe** has a multifaceted career spanning academia, research, and the industrial sector. He earned a B.S. degree from Seoul National University in 1976. He then received an M.S. degree from the University of Washington in 1980 and a Ph.D. from MIT in 1985, with his early research focusing on the intricate design of thermonuclear fusion reactors.

In the 1990s, while teaching at the University of Illinois at Urbana-Champaign, Wayne pivoted his academic pursuits toward industrial plasma processes. Identifying a niche for specialized R&D services in this domain, his research expanded to encompass materials processing and the burgeoning field of nano-optics.

In a notable career milestone, Wayne H. Choe assumed leadership as CEO of Tystar Corporation in 2009. At a time when the company faced financial adversity due to declining sales, he initiated a transformative strategy that revamped corporate culture, fortified customer support, pioneered innovative CVD solutions, and penetrated global markets. Under his leadership, Tystar Corporation has flourished, witnessing an impressive average revenue growth rate of 45% GCAR since 2020.

In the ever-evolving landscape of semiconductor manufacturing, the techniques involved in Low-Pressure Chemical Vapor Deposition (LPCVD) have been pivotal to advancements in device performance and reliability. This lecture series offers a comprehensive exploration into the nuanced methodologies and empirical data that have shaped the field over the past forty years.

Drawing from an extensive reservoir of hands-on experience and meticulous data collection, the lectures will dissect the complex interplay between LPCVD process parameters—pressure, temperature, and gas flow rates—and their impact on film characteristics. Participants will gain an unparalleled understanding of how subtle variations in these parameters can lead to significant differences in film uniformity, stress, refractive index, and stoichiometry, which are critical for various applications ranging from gate dielectrics to passivation layers.

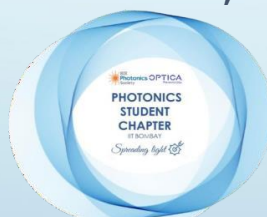
The series will commence with a historical perspective on LPCVD process development, charting the technological breakthroughs that have led to current state-of-the-art practices. Subsequent sessions will delve into the specifics of process optimization, troubleshooting, and innovation in LPCVD techniques. Attendees will be equipped with knowledge that bridges the gap between theoretical principles and practical process execution.

Through a blend of case studies, experimental data analysis, and interactive discussions, this lecture series aims to empower the next generation of engineers and researchers with the tools and insights necessary to push the boundaries of LPCVD technology further. Whether you are a seasoned professional or an aspiring technologist in the field of semiconductor fabrication, these lectures promise to be an invaluable resource in your quest for excellence.

**11<sup>st</sup> Dec, 2024**

**10 AM – 2 PM**

**PHYSICS SEMINAR ROOM, IIT BOMBAY**



Refreshments will be provided to all the attendees!

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