



National Centre for Flexible Electronics

SCDT – FlexE Centre Webinar Series

The webinars aim to bring together researchers in Flexible Electronics and allied areas from across India (and other countries) on a single platform to promote professional interaction.

Abstract of the Webinar

Emerging electronic and optical device applications with integrated flexible substrates are attracting increasing interest. These applications include photovoltaics, displays, lighting, sensors, and antennas as examples. In many of these, a high-quality substrate/superstrate is required for device processing as well as a durable encapsulation approach. Applications specifically targeting optics and electronics require substrate and encapsulation materials with surface quality, dimensional & thermal stability, environmental durability, and hermeticity which can be difficult for polymer and metal materials.

This presentation overviews flexible glass and ultra-thin ceramic materials $\leq 100 \mu\text{m}$ thick that can address these electronic device integration challenges. These thin, lightweight, and flexible inorganic substrates are compatible with both high-throughput sheet and roll-to-roll manufacturing processes. With their combined attribute sets, they are able to target diverse applications. Flexible glass provides high surface quality with $R_a < 1\text{nm}$ and optical transmission $> 90\%$ from the UV to NIR. Ultra-thin ceramic such as alumina provides low RF loss of $\sim 10^{-4}$ and high thermal conductivity $> 36 \text{ W/mK}$. Both material sets have Young's modulus $> 70 \text{ GPa}$, thermal capability $> 600 \text{ C}$, through-via capability, and compatibility with metallization and component attachment approaches. With these attribute sets, flexible glass and ultra-thin ceramic substrates enable new device designs, applications, and performance levels.

Information about the speaker

Sean Garner is a Principal Research Scientist within Corning Incorporated's Science & Technology Division where he has worked for more than 25 years. He received a B.Eng. degree in Engineering Physics (Applied Laser and Optics) from Stevens Institute of Technology and a Ph.D. in Electrical Engineering (Electrophysics) from the University of Southern California. At Corning, Sean works in areas of materials processing and device prototyping focusing on the integration of new substrate, cover glass, and packaging concepts within optoelectronic devices and systems.

Webinar by



Dr. Sean Garner

Science & Technology division
Corning Incorporated, Corning USA

*"Flexible inorganic substrates for
electronic device integration"*

Date: 15th October, 2024

Time: 7:30 PM to 8:30 PM

Visit www.iitk.ac.in/scdt/webinars.html
to access the zoom link to join the
webinar.

The event will be chaired by

Dr. Vivek Verma

Indian Institute of Technology Kanpur