Contribution ID: **189** Type: **not specified**

Redefining electronic boundaries with 3D integration and advanced packaging

Thursday 3 October 2024 10:30 (45 minutes)

Driven by advancements in manufacturing technologies, microelectronics has evolved significantly beyond Moore's Law, now embracing "More than Moore".
This shift emphasizes heterogeneous integration and innovative packaging schemes to overcome challenges like interconnect bottlenecks.
3D integration has emerged as a crucial approach, combining miniaturization benefits with new flexibility in circuit design, particularly in fields such as image sensors, high-performance computing, and artificial intelligence.
These innovations are driving forward more efficient systems with unprecedented functionalities, supported by ongoing R&D efforts.

Perceval Coudrain received a PhD degree from Institut Supérieur de l'Aéronautique et de l'Espace in Toulouse (France) in 2009. He joined STMicroelectronics in 2002 and entered the advanced R&D group in 2005 where he was involved in the early development of backside illumination and monolithic 3D integration for CMOS image sensors. For fifteen years he has been focusing on 3D integration technologies including TSV and Cu-Cu hybrid bonding development. He moved to CEA-Leti in 2020 where his research focuses on 3D integration, wafer level packaging and embedded thermal dissipation solutions.

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Session Classification: Invited