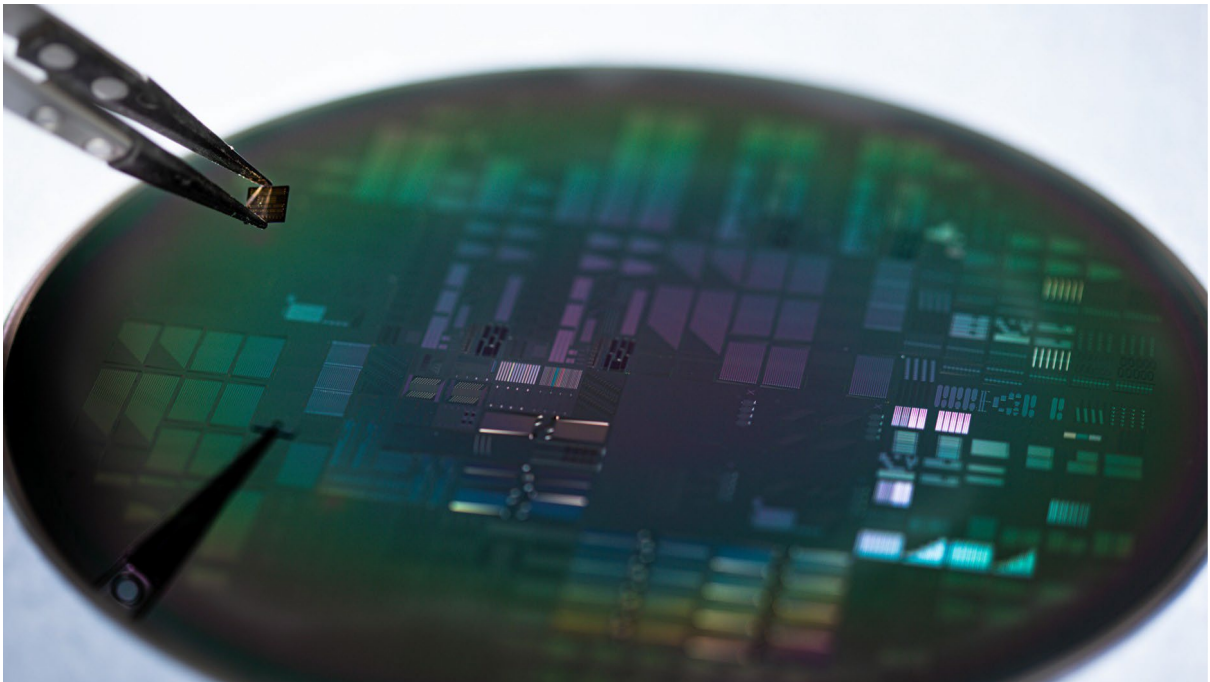


- **Photonics**

- How do you bring the power of light onto a chip? Discover how CSEM is advancing the next generation of Photonic Integrated Circuits, from telecom and sensing to quantum technologies.



At CSEM, photonics spans optics, sensing, imaging and integrated photonic systems. A major focus is our Photonic Integrated Circuits (PIC) foundry, which provides industry and research partners with access to advanced platforms and open-access Multi-Project Wafer services. Building on our pioneering work in Thin-Film Lithium Niobate (TFLN), which led to the creation of the spin-off CCRAFT, we are now expanding into Thin-Film Lithium Tantalate (TFLT) and Silicon Carbide on Insulator (SiCOI) to enable the next generation of communication, sensing and quantum applications.

— Additive Manufacturing (AM): High precision

Pushing precision in AM. From lithography-based AM to high-resolution LPBF with advanced laser processing, we deliver reproducible accuracy and surface quality beyond today's industry standards.

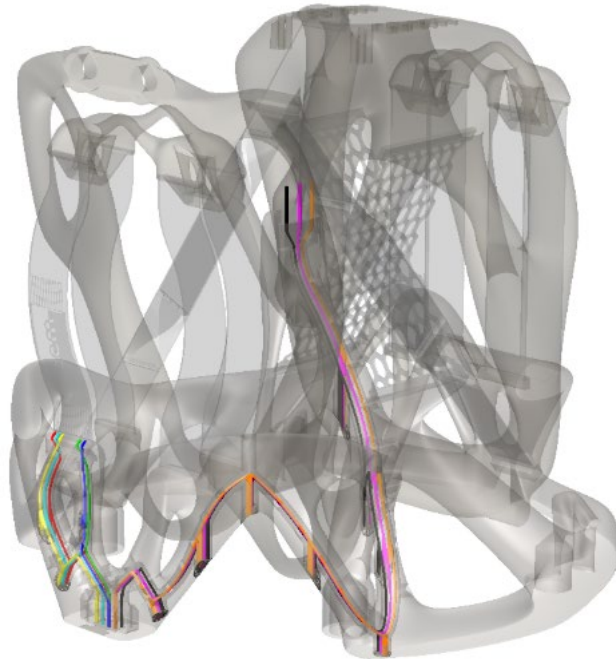


Our High-Precision AM expertise covers two complementary technologies. Lithography-based AM using μ SLA achieves reproducible micro-resolution and smooth surfaces independent of design constraints. By adding micro-particles into the resin, or by combining with electroforming (E-LAM), we support the development of metal parts with unmatched resolution and surface quality.

In parallel, high-resolution LPBF enables tight-tolerance metal components through tailored process optimization and advanced laser modes, including pulsed operation and smaller-than-standard spot sizes. These innovations reduce as-built surface roughness and improve dimensional accuracy, delivering robust precision solutions adaptable across industries.

— Additive Manufacturing (AM): Integrated functions

Integrating intelligence into AM parts. From embedded sensing and heating to microfluidics in medical and biotech applications, we design components that combine multiple functions in one part.



Our Integrated Functions activity develops advanced AM solutions that seamlessly combine electrification, sensing, and structural functionalities. In electrification and sensing, we integrate electrical lines, heaters, and sensors directly into AM parts, enabling compact power distribution, efficient thermal control, and real-time monitoring.

For structural functionalities, we design load-bearing components with embedded damping, shock absorption, and adaptive features, while also pioneering new tools for life sciences and active MedTech devices. By merging multiple functions into single AM parts, these innovations reduce assembly complexity and unlock new opportunities for multifunctional designs in the most demanding applications.