

Capturing the Future: IEEE Life Members Explore Caeleste's Cutting-Edge CMOS Image Sensors

On 26 February 2026, the Benelux IEEE Life Member Affinity Group enjoyed an inspiring visit to Caeleste in Mechelen, Belgium — a global pioneer in custom CMOS image sensors <https://caeleste.be>.

Hosted by founder and CTO Dr. Bart Dierickx, who launched the company from his attic in 2006, members learned how Caeleste has grown into a team of over 50 engineers delivering turn-key, beyond-state-of-the-art sensors for scientific, medical, and industrial applications worldwide

Dr. Dierickx's engaging presentation covered the physics of image sensors and showcased remarkable world-first achievements: the first photo of a virus's atomic structure at 1.85 Å resolution, color X-ray mammography sensors, sub-0.2 electron read-noise pixels, and sensors flown on ESA/NASA missions including Rosetta and HERA. Notably, Caeleste focuses exclusively on peaceful applications—no military projects.

The afternoon continued with a guided tour of the Class 100 cleanroom, design studios, and test laboratories, where members observed the end-to-end process from concept to characterization. Participants appreciated the hands-on insight into radiation-hard and cryogenic sensor design, photon-counting X-ray detectors, and hyperspectral imaging solutions.

The visit included lively discussion over refreshments, leaving attendees with a deeper appreciation for how bespoke CMOS innovation enables breakthroughs from brain-signal mapping to solar magnetism visualization. A truly captivating afternoon for lifelong learners in engineering!

