

Title: **From Automotive Excellence to Humanoid Robots: LMAG Explores Melexis**

On 30 April 2026, the IEEE Benelux Section Life Members Affinity Group (LMAG) enjoyed an insightful visit to Melexis, a leading global supplier of micro-electronic semiconductor solutions, at its site in Ieper, Belgium. Hosted by Dr. ir. Marc Biron, CEO of Melexis, the group gained a fascinating overview of the company's innovative technologies shaping automotive and emerging applications.

Melexis operates worldwide with approximately 2,000 colleagues of 53 nationalities across 18 sites. The company emphasizes diversity: one-third of employees are women, half are engineers, and the board comprises four women and three men, which it credits as a key driver of its success. In partnership with sister company X-FAB, the group employs around 6,000 people globally. As a fabless semiconductor firm, Melexis leverages advanced MEMS and silicon foundry capabilities.

Ninety percent of Melexis' activities focus on automotive electronics. Its sensors and solutions optimize internal combustion engines (ICE) for reduced fuel consumption and lower CO₂ emissions, while supporting electric vehicles (EV) through advanced thermal management, battery safety monitoring, and multi-parameter sensing (temperature, current, pressure, hydrogen). Modern vehicles integrate an average of 18 Melexis chips, with luxury models exceeding 200. Applications extend to tire pressure monitoring, 3D haptic interfaces, IR-based comfort control, and more.

Beyond automotive, Melexis technologies enable alternative mobility (e-bikes, drones), sustainable solutions, digital health (e.g., sweat-based sensing in collaboration with EPFL), and robotics. Accurate positioning and motor control solutions are critical for agile humanoid robots which currently have more than 46 joints. Projections suggest robot production could match car volumes by 2040. AI is also an emerging focus area.

The visit included a tour of state-of-the-art automated testing facilities, essential for ensuring the ultra-high reliability demanded in harsh automotive environments. Attendees left inspired by Melexis' blend of engineering excellence, innovation sprint (launching ~20 new projects annually), and commitment to a smarter, greener future.



PHOTO CAPTION: CEO Dr. Biron and LMAG members in front of the Melexis Patent Wall.