Prof. Max C. Lemme

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Prof. Max Lemme is Full Professor at RWTH Aachen University and Scientific Director of AMO GmbH, a nanotechnology company in Aachen, Germany. He is a co-founder of Black Semiconductor GmbH, Aachen. He obtained his PhD degree from RWTH Aachen in 2004 on FinFETs and SOI-MOSFETs.

He received the “NanoFutur” young researchers’ award from the German Ministry for Education and Research in 2006 and a Lynen Research Fellowship from the Alexander von Humboldt Foundation in 2007. From 1998 to 2008, he worked at AMO, where his last position was as Head of the Technology Department. In 2008, he joined Harvard University in Cambridge, USA, where he pioneered a helium ion-based nanolithography method for graphene and investigated graphene photodetectors. In September 2010, he became Guest Professor at KTH, where he initiated the graphene activities within the School of ICT. He received an ERC Starting Grant in 2012 and was appointed a Heisenberg Professor at the University of Siegen in Germany that same year. In February 2017, Prof. Lemme was appointed Full Professor at RWTH Aachen University and Scientific Director of AMO GmbH. In 2018, he received an ERC Proof of Concept grant, which contributed to the founding of Black Semiconductor. He has managed numerous national and international research projects with academic and industrial partners. His current research interests include electronic, optoelectronic, photonic, and nanoelectromechanical devices and sensors made from novel materials, such as graphene and related 2D materials, Perovskites, and phase change materials, as well as their integration into the silicon technology platform. Recently, his research interests have expanded to include materials and electronic devices for neuromorphic computing. Lemme is the coordinator of the Cluster “NeuroSys – Neuromorphic Computing for Autonomous Artificial Intelligence Systems,” which is funded by the German Ministry of Education and Research. He became an RWTH Fellow in 2024, and an IEEE Fellow and Member of the German National Academy of Science and Engineering in 2025.

3 most important publications

1. M.C. Lemme, T.J. Echtermeyer, M. Baus, H. Kurz, “A Graphene Field Effect Device”, IEEE Electron Device Letters, 28(4):282-284, 2007.
2. M.C. Lemme, F.H.L. Koppens, A.L. Falk, M.S. Rudner, H. Park, L.S. Levitov, C.M. Marcus, “Gate-Activated Photoresponse in a Graphene p-n Junction”, Nano Letters, 11: 4134–4137, 2011.
3. S. Vaziri, G. Lupina, C. Henkel, A.D. Smith, M. Östling, J. Dabrowski, G. Lippert, W. Mehr, M.C. Lemme, “A Graphene-based Hot Electron Transistor”, Nano Letters, 13(4):1435-1439, 2013.