Kornelius Nielsch

Chair of Metallic Materials and Metal Physics at TUD Dresden University of Technology and Director of the Institute for Metallic Materials at the Leibniz Institute for Solid State and Materials Research Dresden (IFW)

His research focuses currently on sustainable thermoelectric (TE) materials, microstructured TE-cooling devices and improving their long-term stability by using atomic layer deposition. Additional scientific interests include topological insulators and Weyl semimetals, multifunctional nanowires and nanotubes, high-temperature photonics, and superconducting materials and applications.

With more than 32,000 citations, 500 refereed publications and 150 invited talks, his strong commitment to the scientific and thermoelectric community includes raising research funds, organizing workshops and symposia, supporting young researchers, and participating in European project initiatives.

Leibniz Institute for Solid State and Materials Research Dresden (IFW)

Leibniz Institute for Solid State and Materials Research Dresden

IFW is a leading research center in advanced materials science that integrates physics, chemistry, and engineering to address fundamental questions and to develop sustainable materials and technologies with high societal impact.

Its research program is structured in four areas:

- Quantum Materials
- Materials for Sustainable Applications
- 2D Materials and Topological States
- From Materials to Novel Technologies

Nielsch's group focuses on novel and environmentally friendly thermoelectric materials with improved efficiency and long-term stability, aiming at resource-efficient energy conversion and cooling solutions.

Institute for Metallic Materials at IFW

Four thermoelectric research groups shed light on the fundamental understanding and development of cooling microdevices and module fabrication.

- Transport in Thermoelectrics
- Nanostructured Bulk Thermoelectrics
- Module Engineering
- Micro System Technology

The Institute for Metallic Materials (IMW) hosts 9 advanced laboratories and 10 research groups, including:

- Interface Engineering & Atomic Layer Deposition
- Magnetic Materials
- Superconducting Nanodevices
- Functional Oxide Layers and Superconductors
- Surface-Functionalized Materials
- Twisted 2D-Materials