October 2023

Chemist from Rostock as substitute professor at the University of Magdeburg

At the Rostock Leibniz Institute for Catalysis, Dr. Christian Hering-Junghans is researching the structure and function of novel ligands, effectively the shell of a catalyst. At the beginning of the fall semester, he also took over a substitute professorship at Otto von Guericke University Magdeburg, namely at the Chair of Inorganic Chemistry. Until the end of September 2024, he will teach chemical fundamentals and special aspects of inorganic chemistry to aspiring biosystems technologists as well as chemical and semiconductor engineers.

There is no pure chemistry course at the University of Magdeburg. But today, many technical professions require knowledge of chemical relationships, says Christian Hering-Junghans. Already at the University of Rostock, he held introductory lectures for a rather "chemistry-remote" audience, namely civil engineering students. Dr. Hering-Junghans has been working at LIKAT since 2017, he led a junior research group until 2021 and he has been research group leader at the institute since 2022.

Dr. Christian Hering-Junghans reseachs on air- and water-sensitive compounds at LIKAT Rostock

Chemistry is basically the backbone of industry. Well over 90 percent of all products are created by chemical processes, and catalysts are involved in four out of five processes. These are special molecular systems with a reactive, often metallic center.

Even inert substances are induced to form new chemical compounds by the presence of the metal atom. And even the packaging of the metal, the ligand, can influence the reaction, "depending on the design and presentation," Dr. Hering-Junghans says. Specifically, he uses phosphaalkenes, for example, which contain a phosphorus-carbon double bond, for his novel

ligand systems. In addition, he combines phosphorus or arsenic, elements of the fifth main group in the periodic table, with elements of the third main group, such as aluminum or gallium.

Incidentally, semiconductor materials for the chip industry, e.g. gallium arsenide, also come from these main groups. This closes the circle to Magdeburg, says Dr. Hering-Junghans, also due to the planned Intel settlement, which makes the location exciting for chemists like him. "We are trying to understand the electronic situation in molecules with our fundamental systems, which could ultimately be precursors for targeted deposition of molecular layers of such semiconductor materials."

Contact:
Dr. Christian Hering-Junghans
Research Group Leader „Catalysis of Phosphorous Materials"
christian.hering-junghnas@catalysis.de
0381 1281 260