

## Research Center Dynamic Systems (CDS)

The **Research Center Dynamic Systems (CDS)** is a central scientific institution at the Otto-von-Guericke-University Magdeburg according to the university law of Saxony-Anhalt. The CDS unites research groups from engineering, systems theory, mathematics, medicine and biology. Scientists from seven faculties of the Otto-von-Guericke University and from the Max Planck Institute work together closely and interdisciplinarily in order to achieve the jointly set goals.

Involved are:

Faculty of Electrical Engineering and Information Technology  
Faculty of Computer Science  
Faculty of Natural Sciences  
Faculty of Process and Systems Engineering  
Faculty of Mathematics  
Faculty of Economics and Management  
Faculty of Medicine  
Max Planck Institute for Dynamics of Complex Technical Systems Magdeburg

The aim of the CDS is to gain a basic understanding of complex dynamic systems in biomedicine, chemical production systems and energy conversion processes. This understanding can be used for the precise manipulation of observed systems or for the development of new processes and active substances. Mathematical models and methods are an essential connecting link in the work of the CDS. The current intentions for the further development of the CDS are to prepare and support the fundamental structural change of the chemical industry in Saxony-Anhalt coming in the next years.

The **SmartProSys** (<https://www.smartprosys.ovgu.de/>) research cluster was developed out of the CDS and is concerned with the sustainable production of chemicals.

The CDS is funded by the State of Saxony-Anhalt within the framework of the European Regional Development Fund (ERDF).

### Events

#### RTG 2408 Guest Seminar

**When?** May 19th, 2025, 2:00 p.m.

**Where?** House 28 - Demonstration lecture hall

#### MPI Colloquia Series: Prof. Dr.-Ing. Nicole Gehring

**When?** June 19th, 2025, 2:00 p.m. to 4:00 p.m.

**Where?** Max Planck Institute Magdeburg - Big seminar room "Prigogine"

### News

05.05.2025

#### The radiant power of the microwave

CDS member Dr.-Ing. Nicole Vorhauer-Huget from the Institute of Process and Systems Engineering at the Otto von Guericke University Magdeburg and her research group focus on making energy-intensive production processes more efficient and environmentally friendly, significantly reducing the enormous consumption of fossil fuels and the associated CO<sub>2</sub> emissions.

more...

23.04.2025

#### Successes in cell research

CDS member Prof. Dr. Inna Lavrik was able to achieve impressive research results on the molecular mechanism of programmed cell death with her research group "Translational Inflammation Research" at the Medical Faculty of the Otto von Guericke University Magdeburg. The results were now published in the internationally acclaimed EMBO Journal.

more...

02.04.2025

#### Scientific breakthrough in chemistry

The team led by CDS member Prof. Dr. rer. nat. habil. Dieter Schinzer from the Institute of Chemistry of the Otto von Guericke University Magdeburg have succeeded for the first time in synthetically recreating the naturally occurring active ingredient disorazol Z1 using a highly efficient process. It is the world's first total synthesis of this highly active natural compound.

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25.03.2025

#### Pulsed electrolysis: A breakthrough for energy efficiency?

New insights about the energy efficiency of pulsed electrolyses emerged from a cooperation of SmartProSys researchers from the Max Planck Institute for Dynamics of Complex Technical Systems Magdeburg with experts from the Chair of Power Electronics and the Institute of Control Theory of the TU Dresden.

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CDS Coordination

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Europäischen Union

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