UNIVERSITÄT DUISBURG ESSEN

PHYSIK E=

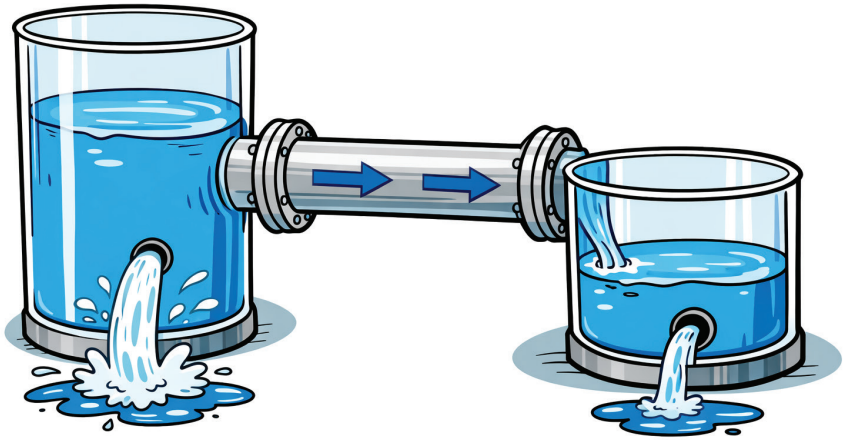
Physikalisches Kolloquium

Mittwoch, 01.07.2026
13:00 Uhr
MC 122 und Zoom

https://uni-due.zoom-x.de/j/64228670246?pwd=RjVQeFNIUkRKRkpiNVpKYXhJaFNLdz09 (gilt für alle Vorträge)

Non-Hermitian phase transitions in a bulk system

Manfred Fiebig, ETH Zurich



Post-CMOS Photonics for optical computing systems

In conventional phase transitions, a small change in a control parameter near a critical point leads to a qualitative change in a system's ground-state properties. A familiar example is the emergence of magnetization when a ferromagnet is cooled below its Curie temperature. When a system is driven far from equilibrium, however, its relaxation dynamics can also undergo a qualitative transformation. Such behavior is known as a non-Hermitian phase transition, where it is the dynamical properties rather than the static ones that change drastically at a so-called exceptional point. In this talk, I will discuss the possibility of observing such non-Hermitian phase transitions in bulk materials. Although this has often been considered unlikely, our optical experiments and theoretical modeling indicate that they may in fact be quite common. One particularly fascinating aspect arises when a conventional (Hermitian) phase transition interacts with a non-Hermitian one – an interplay that I will also explore.