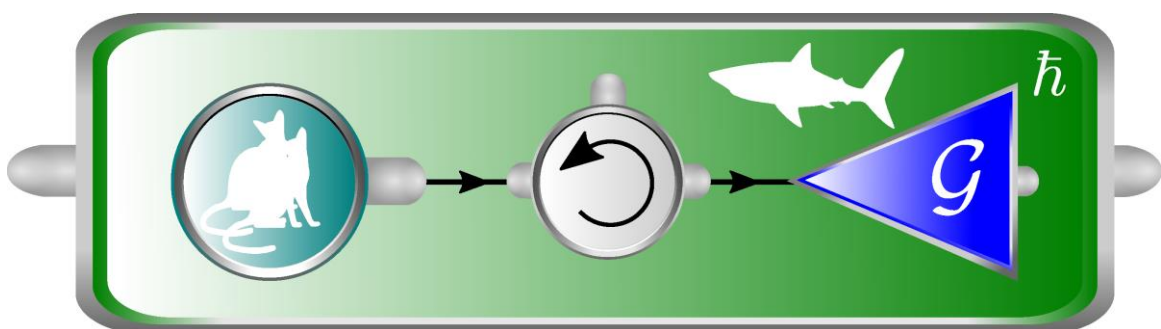


## Einladung zum Physikalischen Kolloquium

10.01.2025 **Anja Metelmann, Karlsruher Institut für Technologie**  
**»Nonlinearity and Dissipation as a Resource  
for Engineered Quantum Systems – or a tale of cats and sharks«**  
*Einführung: Der Dekan der KIT-Fakultät für Physik*

Engineered quantum systems, encompassing artificial mesoscopic structures governed by the principles of quantum mechanics, represent a cornerstone of modern quantum science. Notable examples include superconducting circuits, ultracold trapped atoms and ions, as well as electro- and optomechanical systems. These systems are not only fascinating from a fundamental physics perspective but also serve as essential building blocks for technological applications. Such quantum technologies hinge on two critical aspects: first, the design of quantum architectures capable of performing specific tasks, such as computation, sensing, or communication; and second, the ability to control, read out, and interconnect these architectures. Achieving this requires processing devices that operate efficiently at the quantum level. However, these devices, much like the quantum architectures they support, must contend with fundamental challenges—namely, nonlinearities and noise. In this talk, we explore an unconventional perspective, demonstrating how these apparent limitations can be transformed into powerful assets, paving the way for innovative advancements in quantum technology.



Der Vortrag findet **am Freitag, den 10. Januar 2025 um 15:45 Uhr im Otto-Lehmann-Hörsaal**, Physik-Flachbau (Geb. 30.22), KIT-Campus Süd statt.