

Freitag, 3. Juni 2022, 15 Uhr c.t. im Hörsaal I des Physikalischen Instituts



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„Quantum Technology: from Oceanography to Cosmology“

The experimental platform of atoms manipulated by light is extremely versatile and can be used to address fundamental questions in very different fields of physics. In this colloquium I will give two explicit examples, how modern atomic physics experiment open new avenues for studying dynamics. One fundamental question in oceanography is the dynamics of water, more specifically the time when deep water in the ocean was last in exchange with the atmosphere. This information is especially important for estimating the uptake of anthropogenic carbon. We will discuss why Argon 39 atoms are a perfect choice for addressing these questions and why it is such a challenge to unleash their potential. A very different fundamental question is the dynamics in the early Universe typically approached with heavy-ion collision experiments at CERN. Here, ultracold atoms can give new insight and confirm for the first time the theoretically predicted emergence of universal quantum dynamics far from equilibrium.

