



**Einladung**  
**zum Mathematischen Kolloquium**  
**mit Vor-Kolloquium**  
**moderiert von Cornelia Vogel**

Es spricht am

Montag, den 07.12.2020, um 16 Uhr

***Prof. Dr. Peter Pickl***

*(LMU München)*

über das Thema

**„Arrow of Time in Physics“**

Since the work of Boltzmann, there is the important question of how to explain the arrow of time in statistical physics: While most microscopic laws do not know a direction of time, one can clearly see an arrow of time in macroscopic nature. A glass that falls on the floor breaks into many pieces, but the same process is not observed backwards. The usual attempts to explain this are based on a very special initial condition, a state of very great order. This state then naturally develops into a state of great disorder. The asymmetry (order  $\rightarrow$  disorder) over time is not surprising. However, this explanation shifts the problem to the question of where the initial special condition came from.

Alternative explanations are to be discussed in the lecture. Indeed, considering systems without equilibrium, it seems possible to find models for which the entropy typically increases. The focus in the talk is on the concepts, many of the questions asked are still "work in progress" from a mathematically rigorous point of view.

**online - wenn Sie Zugang haben wollen, schicken Sie bitte eine Nachricht an Angelika Spörer-Schmidle.**