

PUBLIC LECTURE

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Haus der Wissenschaft

How pipe flow becomes turbulent - a matter of life and death

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Haus der Wissenschaft

Sandstraße 4/5

Entrance free

Fluid flows can either be smooth and laminar or disordered and turbulent. Although in pipes the laminar state is in principle stable, in practice almost all flows are turbulent

www.wis-turb.math.uni-bremen.de

causing a drastic increase in friction losses. Although this problem has been intensely studied for over a century, the nature of the transition could not be explained. As will be shown this riddle can be resolved by considering the onset of turbulence as a spreading phenomenon where laminar domains compete with turbulent regions.

In analogy to a basic statistical physics model the onset of turbulence can then be understood as a continuous phase transition and an exact critical point can be defined.

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