UNIVERSITÄT DUISBURG ESSEN

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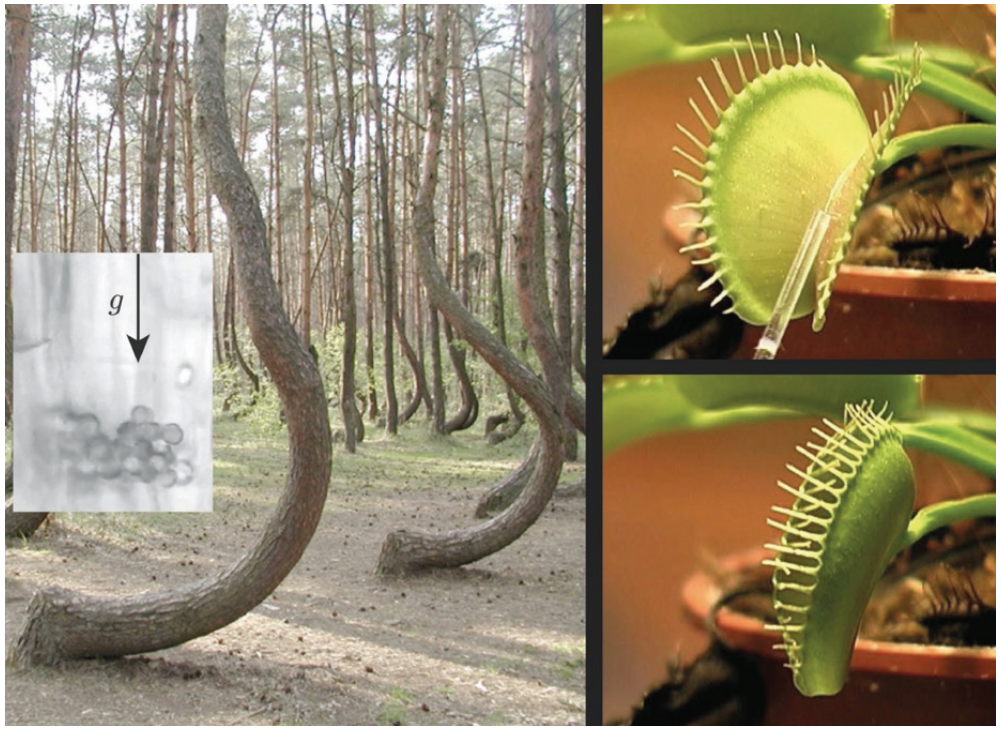
Physikalisches Kolloquium

Mittwoch, 11.11.2026
13:00 Uhr
MC 122 und Zoom

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

Prof. Dr. Yoël Forterre, USTI Laboratoire, Aix Marseille Université and CNRS

From perception to action without nerves or muscles: The hidden physics of plants



Plants are sessile organisms, lacking nerves and muscles. As such, they have evolved original strategies to perceive physical signals such as light or gravity, and to generate movements that allow them to grow, defend themselves, or reproduce. In this seminar, I will discuss some of the physical principles underlying plant perception and motion. I will first focus on gravitropism: the ability of plants to sense gravity and adjust their growth to maintain an upright posture. We will see how plants use an intracellular, self-agitated “active” granular medium to detect even very small inclinations, providing them with remarkable sensitivity. I will then turn to the physics of rapid plant movements. We will see how hydraulic processes, rapid changes in material properties and elastic instabilities enable plants to achieve remarkable speeds and power, despite the absence of muscles.