

Surface tension everywhere: from nature designs to high-tech devices

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Surface tension is encountered every time a liquid has an interface with another phase. How to collect water in the desert? Why can we keep a mayonnaise for several weeks in the fridge, and why is it so expensive to produce oil? How could the tiny camera of our cell- phone focus over a large range? How do rainfalls affect epidemic diseases in plants and crops? How do insects walk on water, and how do they choose the right flower to feed on nectar? Can we visualize quantum phenomena with the naked eye? The answer to these questions (and many others) always involves surface tension. This talk intends to give an overview of various capillary flows encountered in nature, fundamental research and industry. Each phenomenon will be described experimentally and briefly rationalized by theoretical arguments. Models will go from the simplest scaling laws to the hardest mathematical problems.