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Flow-plant interactions, ecology and biomimetics

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Plants interact strongly with their environment, and some of these interactions are mechanical. The flow of the media where the plants live, such as air or water, is a source of mechanical excitations that cause plant deformation and motion. These couplings between the plant behaviour and the flow are immensely varied, but some common feature may be identified, such as drag reduction by deformation or waves on canopies. The mechanical response of plants plays a role in many biological functions, from pollen dispersion to photosynthesis. At a larger scale, the ecology of plant populations is influenced by the ability of species to interact with flows, and particularly with extreme flow. Moreover, some of the observed mechanism of flow-plant interactions maybe interesting sources of bioinspiration for the design of man-made structures.

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