Abstract Submitted
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Bending-induced folding, an actuation mechanism for plant reconfiguration.[1] DENIS TERWAGNE, JRMY SEGERS, Facult des Sciences, Universit Libre de Bruxelles, TRIOS.LAB - SOFT STRUCTURES AND SURFACES LAB TEAM — Inspired by the sophisticated mechanism of the opening and closing of the ice seed plant valves (Aizoaceae), we present a simple model experiment of this mechanism based on an origami folding. By imposing a curvature to one of the plate connected to a fold designed along a curved path, we actuate its opening and closing. The imposed curvature induces inner mechanical constraints that give us a precise control of the deflection angle, which ultimately leads the fold to close completely. In this talk, we will present an analysis and characterization of this mechanism as a function of the geometrical and mechanical parameters of the system. From these insights, we will show how to build origami pliers with tunable mechanical properties. Possible out comings that might arise in various fields, ranging from deployable engineered structure to soft robotics and medical devices, are discussed.

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