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Coupled flutter of parallel flags[1] CHRISTOPHE ELOY, LIONEL SCHOUVEILER, IRPHE, Marseille, France — We address experimentally and theoretically the flutter instability of parallel flags in uniform airflow. Identical flags are cut from Mylar sheets and clamped into parallel streamlined masts. When placed in a low-turbulence wind tunnel, the flags flutter at a well-defined frequency if the flow velocity is above a critical value. This instability results from the competition between the destabilizing pressure forces and the stabilizing bending stiffness of the flags. Depending on the number of flags, the distance between them, their size and the flow velocity, different coupled modes can be observed with a high-speed camera. The observed modes and their frequencies are compared with a theoretical linear model assuming a potential flow and small flag deflections.

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