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Centrifugal adhesion balance (CAB) : A novel surface characterization technique RAFAEL TADMOR, LAN DANG, AISHA LEH, PRASHANT BAHADUR, KUMUD CHAURASIA — Drop lateral adhesion to a surface and the condition for drop sliding along a surface are key issues in many disciplines including biophysics, environmental science, fluid dynamics and agriculture. Yet, to date, except for the tilt stage method, which is extremely limited in range of forces, there is no systematic experimental instrumentation to measure the forces required for drop sliding. We present a new instrument that uses centrifugal forces to slide any drop along a surface. Beyond extending the range of measurable drop-surface interaction, the instrument enables decoupling of some parameters that are bound to be coupled with the simple tilt stage method. Specifically the tilt stage method has two variables varying at the same time: the lateral and normal forces. This violates a fundamental principle of experimental science which leads to obscured understanding of surface characteristics. The CAB avoids this problem.

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