

## Hertz Contact at Finite Friction and Arbitrary Profiles

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Axisymmetric contact at finite Coulomb friction and arbitrary profiles is examined analytically and numerically for dissimilar elastic solids. An incremental procedure is developed resulting in a reduced problem corresponding to rigid flat indentation of an elastic half-space being independent of loading, contact region and shape. This issue was solved by a finite element method based on a stationary contact contour and subsequently a tailored cumulative superposition procedure was developed to resolve the original problem. It is shown that at partial slip the evolving relative stick-slip contour is independent of any convex contact profile at monotonic loading. For flat and conical profiles with rounded edges and apes, relations between force, depth and contact contours are given together with surface stress distributions. For dissimilar solids, full field values were computed individually. The location and magnitude of critical stress measures are determined for a range of geometrical and material parameters.

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