Supplementary Materials: A simple semi-analytical method for solving axisymmetric contact problems involving bonded and unbonded layers of arbitrary thickness

Fabian Forsbach [1]

Normalized contact solution of a cylindrical flat punch and bonded or unbonded layer: Explanation of the provided .mat-files

The BEM results of the normalized contact stiffness $\overline{k}_{\mathrm{N}}(a/h)$and the normalized pressure distribution $\overline{p}(r/a, a/h)$ needed for the evaluation of Eqs. (4),(10) and (11) in the main text are provided in the supplemented .mat-files. All files contain the four arrays:

- "*a_h*" - one-dimensional array of the confinement ratio a/h
- "*r_a*" - one-dimensional array of the normalized radius r/a
- "*kN_norm*" - one-dimensional array of the normalized contact stiffness $\overline{k}_{\mathrm{N}}(a/h)$
- "*p_norm*" - two-dimensional array of the normalized radius $\overline{p}(r/a, a/h)$

For the bonded layer, the quantities further depend on the Poisson's ratio ν (see main text). We provided data for $\nu = \{0.0, 0.3, 0.4, 0.45, 0.49, 0.5\}$.

We additionally provide the dimensionless parameters m and κ according to the contact stiffness representation in Eq. (32) of the main text:

- "*m*" - one-dimensional array of the exponent $m(a/h)$ in Eq. (32) as defined by Eq. (33)
- "*kappa*"- one-dimensional array of the dimensionless parameter $\kappa(a/h)$

These parameters are generally not needed for the contact solution, but may facilitate the solution for parabolic indenters.