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Contact mechanics problem between an orthotropic graded coating and a rigid punch of an arbitrary profile

Onur Arslan , Serkan Dag

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Highlights

- A new singular integral equation method for frictional contact mechanics of finite thickness orthotropic graded coatings is proposed.
- All stiffness coefficients of the orthotropic graded coating are assumed to be functions of the thickness coordinate in the derivation of the singular integral equation.
- Both complete and incomplete contact problems are investigated.
- Comparisons of results obtained by singular integral equation and finite element methods indicate excellent agreement.
- Effects of problem parameters on the contact stresses are demonstrated.

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