

Verification - Example 7: Penny shaped crack

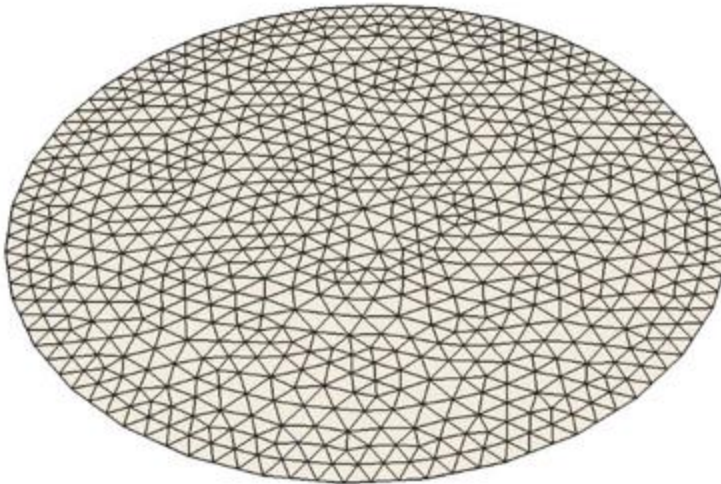
Problem Description

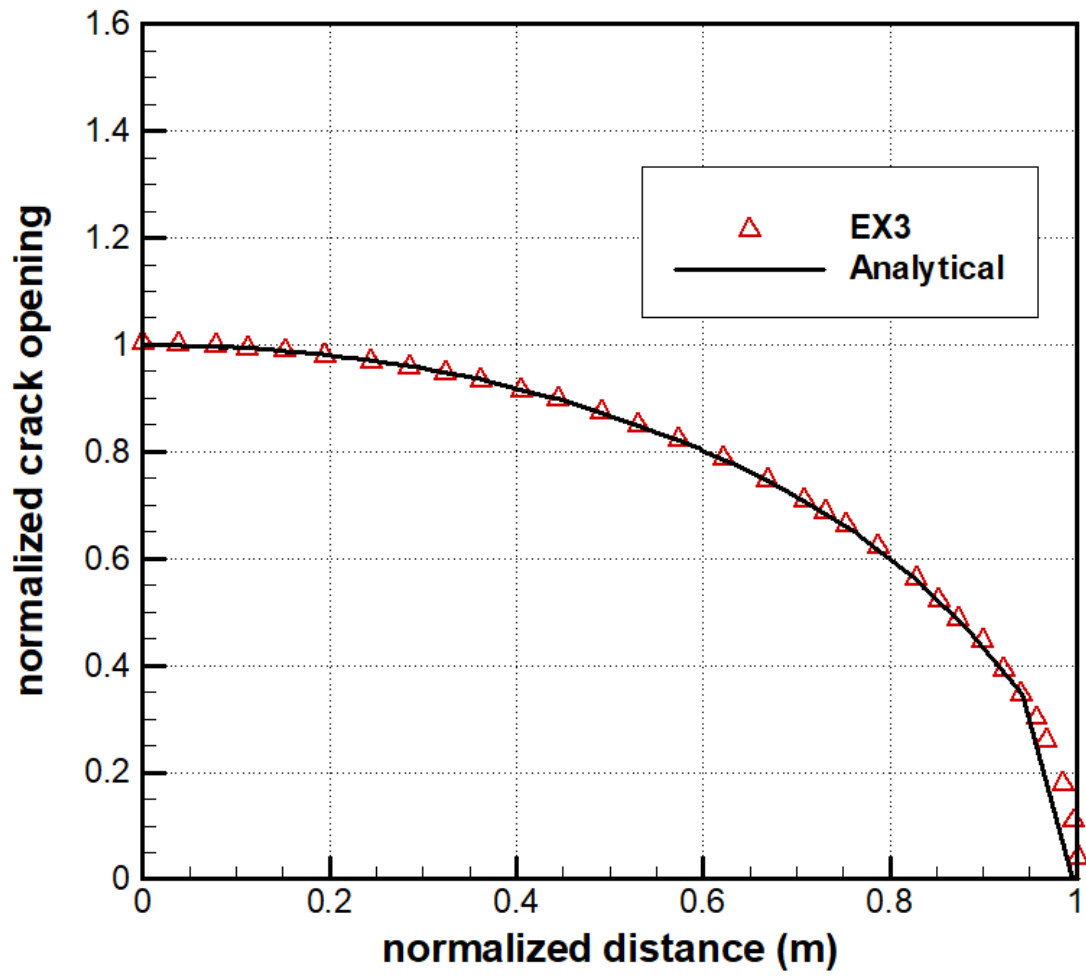
This verification example demonstrates a penny shaped crack with an arbitrary radius considered in an infinite domain.

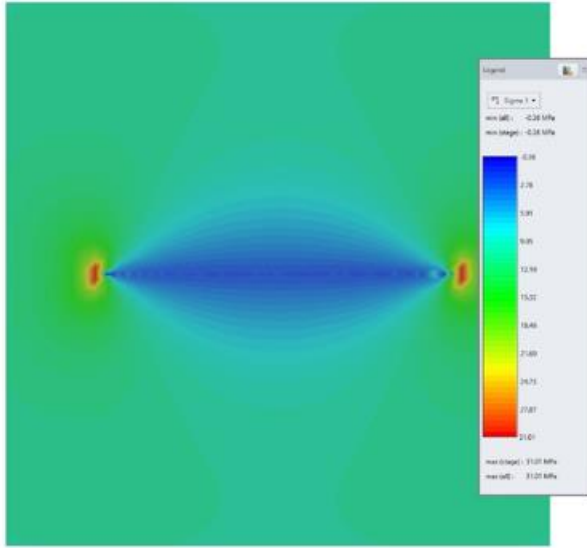
Model Information

- The module of elasticity is assumed to be 2000 MPa and $\nu=0.25$.
- The shear and normal stiffness of crack is assumed to be zero.
- A constant 10MPa field stress is applied to the crack.
- The boundary condition at the nodes on the rim of the crack is assumed to have zero opening.
- The normalized opening of the crack along the surface is calculated and compared with analytical solution.

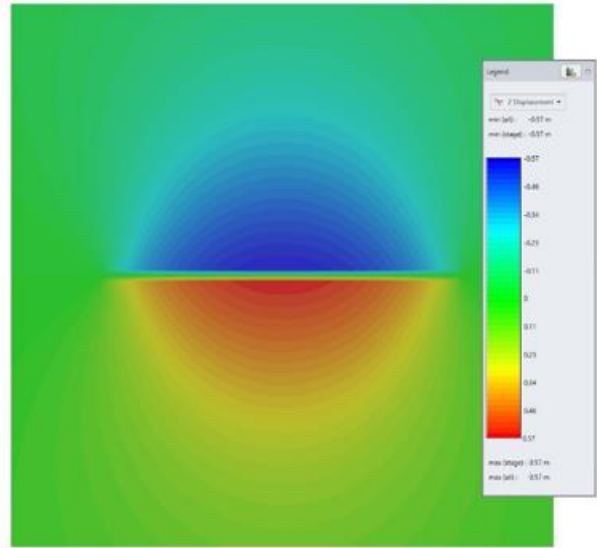
Results







Sigma 1



Displacement in Z

References

Sneddon, I.N and Lowengrub, M. (1969) Crack Problems in the classic theory of elasticity, John Wiley & Sons, Inc.

Data Files

The data input file(s) and file for the finished model can be found in the EX3 installation folder.