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Residual Stress Sensitivity Analysis using a Complex Variable Finite Element Method

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Highlights

- ZFEM was used to calculate partial derivatives of the residual stress field.
- Sensitivities are calculated with respect to material parameters and applied load.
- Nonlinear ZFEM obtains sensitivities throughout the loading/unloading cycle.
- ZFEM results were shown to be in excellent agreement with analytical solutions.
- ZFEM can obtain sensitivities while simulating the manufacturing processes.

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