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## Modeling Plastic-Damage of Reinforced Concrete in Finite Element Applications

### Abstract

This study developed a material model that simulates load-induced cracking in reinforced concrete (RC) elements in finite element (FE) analysis of structures. The simulation of complete stress-strain concrete behavior under tension and compression (including damage characteristics) requires the application of two numerical material models, which potentially will produce the stress-strain curves. The models include strain-softening regimes that presuppose the use of ultimate compressive concrete strength which could be practically implemented for existing or future RC structures. The method presented in this study is valuable because it assesses existing RC structures when detailed test results are unavailable. However, the implemented numerical models were slightly altered to make them comparable to the damaged plasticity model available in the finite element package used (Abaqus).

Zoom link for online participants:

<https://ksu.zoom.us/j/94097060261>