

**Plain concrete linearized stiffness diminution modeling subjected to different stresses-strain relationship models.**

ABSTRACT

Linearized stiffness diminution, which is correlated with material damage characteristic, is the major parameters due to modeling of granular material behavior such as plain concrete subjected to cyclic loading. Many damage equations in tension and compression states are proposed in the literatures, however, they produces different damages considering the concepts of the equation's development without any capability of fitting and calibration of produced damages curves with any arbitrary test records. In the present paper, the new equations of concrete damages in the tension and compression state with calibration capability based on the two separated damage indices are developed based on linear interpolation hypothesis. In the result, it is shown that the present equations can be produced the damage parameters close to experimental data.

**Keyword:** Calibration capabilities; Cyclic loadings; Damage index; Damage parameter