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A nonlinear finite element analysis method for cable structures

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ABSTRACT

In this study, we first introduce an approach that uses the ratio of the "actual increment" to the "theoretical maximum increment" of the nonlinear component of the wire axial force to calculate the contribution of one wire to the tangent bending stiffness of the strand. Then, a new finite element method for modeling cable structures is presented. The analysis method adopts rigid body rule to handle the geometric nonlinearity of cable structures.

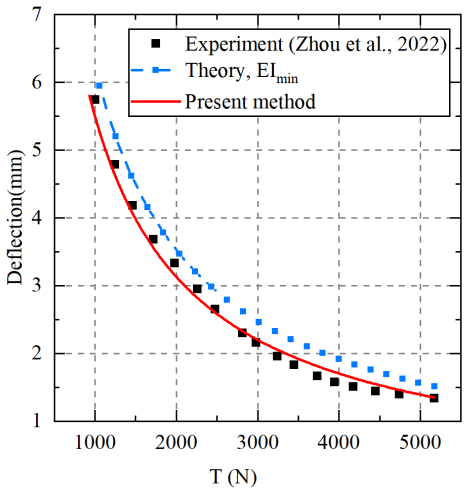

Fig. 2. A comparison of deflection

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