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## STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(644K\)\]](#) [\[References\]](#)**A DISCRETIZATION OF TAPERED BEAMS UP TO THE SECOND-ORDER NONLINEARITY**Masahiro AI<sup>1)</sup> and Satoru WATANABE<sup>1)</sup>

1) Dept. of Civil Environ. Eng., Hosei University

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It is quite complicated for the linear differential equation of beam deflection to be expanded as to varying cross section. But, once a tapered beam element is solved, its nodal stiffness relations can be adopted into a general discrete analysis of framed structures. In this paper, the method of separation into rigid displacement and deformation, which has been developed in the geometrically nonlinear analysis, is found to have a fitness for dealing with the varying beam elements; and typical two types of tapered 2-D beams are discretized from their linear solutions into the geometric and second-order stiffness relations.

**Key Words:** tapered beam, nonlinear discretization, geometric stiffness[\[PDF \(644K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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