

VC 76864



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# United States Patent [19]

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## [54] METHOD AND SYSTEM FOR DETERMINING AXIAL MODULUS

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### [57] ABSTRACT

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A method is provided for determining the axial modulus of an elongate material sample of mass density  $\rho$  and length  $L$ . The first end of the sample is driven longitudinally at a frequency of excitation  $\omega$ . The second end of the sample opposite the first end may or may not be under tension. At the frequency of excitation  $\omega$ , the longitudinal displacement and longitudinal force at the first and second ends of the sample are determined. The axial modulus is calculated for any frequency as a function of mass density  $\rho$ , length  $L$ , frequency of excitation  $\omega$ , and longitudinal displacement and longitudinal force at the first and second ends.

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[51] Int. Cl.<sup>6</sup> ..... **G01N 3/00; G01H 13/00**

[52] U.S. Cl. .... **73/574; 73/579; 73/581**

[58] Field of Search ..... **73/649, 574, 575, 73/584, 602, 581, 582, 658, 659, 579; 364/505, 506**

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**7 Claims, 2 Drawing Sheets**

