Potential Use of a Piezoelectric Wire Sensor for Monitoring the Flexural Vibrations of Logs

D. Ouis

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Conventional piezoelectric accelerometers, usually distributed commercially in the shape of crystals, are quite expensive and require some care regarding usage. These sensors are used in structural engineering or acoustics to investigate the response of vibrating systems under various operational conditions, or to detect the eventual presence of defects in them. The purpose of this paper is thus to introduce a new type of accelerometer, in cable form, which may be used for sensing the bending vibrations of wood elements. This wire sensor, which is robust, easy to attach to the wood elements, and about an order lower in price than its crystal counterpart, has been tested on logs with satisfactory results. In the future, this will, hopefully, constitute a cheap, yet not less effective, substitute to the classical piezoelectric crystal sensor.