

Abstract Submitted
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Nonlinear vibrations of a large Balinese gamelan gong DAVID W. KRUEGER, KENT L. GEE, JEREMY GRIMSHAW, Brigham Young University — The Balinese gamelan gong ageng wadon produces distinct acoustic beating (called ombak) when struck. This phenomenon is explored using both acoustical and vibrometry measurements. The measurements have revealed the beating has two sources. First, there are four closely spaced modes that, given their asymmetric vibration patterns, might have been deliberately hammered into the response of the gong. Second, and more importantly, a nonlinear structural response of the gong causes the fundamental axisymmetric mode to produce harmonics. The second harmonic of the fundamental mode interacts with the second axisymmetric mode with relative amplitudes such that strong beating is produced.

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