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A Simple Speckle-Pattern Inteferometer

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Poster Presentation P4

A SIMPLE SPECKLE-PATTERN INTERFEROMETER

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A speckle-pattern interferometer is a useful tool for characterizing the mode shapes of resonant structures. Many designs are expensive to build, requiring specialized components. Moore created a less-expensive speckle-pattern interferometer (Am.J.Phys. 72, 1380 (2004)) with common lab equipment for use in undergraduate and secondary education labs. The goal of this project was to design a simple speckle-pattern interferometer that was not only inexpensive, but would be flexible enough to be used in a wide variety of undergraduate research experiments. Many simplifications have been made to the system such as the ability to make real-time adjustments without having to restart an entire data collection run. We will present results of a variety of objects studied using the interferometer constructed here at Illinois Wesleyan University.