



**Illinois Wesleyan University**  
**Digital Commons @ IWU**

---

John Wesley Powell Student Research  
Conference

2008, 19th Annual JWP Conference

---

Apr 12th, 11:00 AM - 12:00 PM

## **Investigation of the Effect of Shaking the Front Plate of a Mandolin**

Thomas Traynor  
*Illinois Wesleyan University*

Andrew Morrison, Faculty Advisor  
*Illinois Wesleyan University*

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>

---

Traynor, Thomas and Morrison, Faculty Advisor, Andrew, "Investigation of the Effect of Shaking the Front Plate of a Mandolin" (2008). *John Wesley Powell Student Research Conference*. 2.

<https://digitalcommons.iwu.edu/jwprc/2008/oralpres10/2>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

Oral Presentation O10.1

**INVESTIGATION OF THE EFFECT OF SHAKING THE FRONT  
PLATE OF A MANDOLIN**

Thomas Traynor and Andrew Morrison\*  
Physics Department, Illinois Wesleyan University

Like any vibrating object the front and back plate of a mandolin will have mode shapes and operating deflection shapes when vibrated. The goal of this project was to test whether or not shaking the front plate, a common practice by luthiers during construction, changes the operating deflection shapes that occur during the vibration of the front plate. Some luthiers claim that shaking the front plate during construction will actually break down some of the cellular structure in the wood causing the instrument to have a better sound, like a well-played mandolin. Using speckle pattern interferometry, the front plate of a mandolin was characterized during construction before and after it had been shaken. This data will also be compared to the analysis of the front and back plate of a student mandolin.